The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 143, No. 9 — CHICAGO, ILLINOIS — JULY 1, 1950
COPYRIGHT, 1950, BY AMERICAN MEDICAL ASSOCIATION

THE RESPONSIBILITY OF AMERICAN MEDICINE

PRESIDENT'S ADDRESS

ELMER L. HENDERSON, M.D.
Louisville, Ky.

In the annals of American medicine, this is a historic occasion. Tonight, the American Medical Association, in its inaugural ceremony, is speaking not just to doctors, but to the American people—on two nationwide radio networks, reaching into every state and into every corner of the country.

There is a vital reason for this new policy. Our affairs are no longer just medical affairs. They have become of compelling concern to all the people. American medicine has become the blazing focal point in a fundamental struggle which may determine whether America remains free or whether we are to become a socialist state, under the yoke of a government bureaucracy, dominated by selfish, cynical men who believe the American people are no longer competent to care for themselves. In view of the challenge which confronts us, it is with a deep sense of responsibility that I begin my year of stewardship as President of the American Medical Association.

American medicine, which has led the world in medical advances, and which has helped to make this the healthiest, strongest nation on the face of the globe, has been made the first major objective of those ambitious men in Washington who would make the American people walk in lockstep under a rigidly controlled, government-dominated economy.

The American medical system has been made a target for the barbs and criticisms of a comparatively small group of little men—little men whose lust for power is far out of proportion to their intellectual capacity, their spiritual understanding, their economic realism and their political honesty. These men of little faith in the American people propose to place all our people—doctors and patients alike—under a shabby, government-dictated medical system which they call compulsory health insurance. And this, factually, is socialized medicine, regardless of how hard they try to disclaim it.

But it is not just socialized medicine which they seek; that is only their first goal. Their real objective is to gain control over all fields of human endeavor. Their real objective is to strip the American people of self determination and self government and make this a socialist state in the pathetic pattern of the socially and economically bankrupt nations of Europe which we, the American people, are seeking to rescue from poverty and oppression.

This we must all recognize: There is only one essential difference between socialism and communism. Under state socialism human liberty and human dignity die a little more slowly, but they die just as surely! Never will our people accept the socialist program that grasping men in our government have planned for them, if they once understand that fundamental fact. And tonight I call on every doctor in the United States, no matter how heavy the burden of his practice may be, to dedicate himself not only to the protection of the people's physical health but also to the protection of our American way of life, which is the foundation of our economic health and our political freedom. The moral and spiritual health of a people certainly is of equal importance with their physical well-being.

It is not American medicine which has failed to measure up to its obligations. It is not American business nor American agriculture which has failed, nor the fine, loyal working people of America who have failed. It is the administrative arm of our government in Washington which has failed us in this generation—a government which is sick with intellectual dishonesty, with avarice, with moral laxity and with reckless excesses. That condition we simply must change, if we are to survive as a strong, free people, and all of us—every one listening to me tonight, regardless of what his way of life may be—must share the responsibility. There are many who recognize this need.

Only two days ago newspaper publishers of the National Editorial Association, which represents 5,200 country newspapers in every section of America, made a pilgrimage to Plymouth Rock to rededicate themselves to the principles and the ideals on which this country was founded and to consecrate themselves anew to the fundamental freedoms of our America. Tonight, in behalf of American medicine, I want to pay tribute to the American press for its staunch devotion to the welfare of our people.

If it were not for leadership of the American press in defending our fundamental liberties, American medicine, even now, might be socialized—and under the heel of political dictation. The newspapers of America, with comparatively few exceptions, have taken a strong stand not only against socialized medicine but against all forms of state socialism in this country—and the doctors of America are proud to take their stand beside the fighting editors of America in the battle to save our freedom and the system of individual initiative which maintains it.

I am taking office as President of the American Medical Association at the halfway mark of the fabulous twentieth century—and I want to review briefly some of the advances we have made before turning to the goals which lie ahead.

President's address before the Ninety-Ninth Session of the American Medical Association, San Francisco, June 27, 1950.

UNIVERSITY OF MICHIGAN LIBRARIES

The history of American medicine is a vibrant, continuing story of human progress. Because of that progress, millions of Americans are alive today who otherwise would have died at birth, during infancy, in childhood, in youth or in middle age. The story of never ending medical progress in this country is not just a story of so-called miracle drugs and miracle discoveries. The real miracle of American medical progress is the miracle of America itself—the motivating power of the American spirit, of free men, unshackled and unfettered, with freedom to think, to create, to cross new frontiers. Part of the great miracle that is America is our freedom to share, to cooperate, to work together for the common good.

That is the spirit which not only has provided the motive power for American medicine but which has permeated the entire fabric of our American life—inspiring labor and business and industry, science and education and all our fields of endeavor. It is only the course of wisdom and common sense, therefore, to examine the past, present and future of our medical system—to appraise what has been done, what is being done, and what can be done.

For if government—under the guise of misleading promises of health "security"—finally regiments physicians, dentists, nurses, druggists, scientists, hospitals, medical schools and patients under a totalitarian plan which Washington directs and the people pay for, the spirit of individual initiative will be killed not only in the realm of health; gradually, it will die in all phases of American life, just as it is dying today in other nations which first embarked on socialized medicine and then took the final, irrevocable steps down the path of state socialism.

Let us look at the facts:

In America, since the turn of the century, the death rate has been cut almost in half. In 1900 the average life expectancy at birth was only 49 years. Today newborn babies have a life expectancy of more than 68 years—a gain of 19 years. For American mothers and babies, the risks of childbirth have been greatly reduced. Both the maternal and infant mortality rates are the lowest in our history. The death rate for mothers in this country is the lowest reported by any nation in the world. I wonder whether the politicians who want control over medicine can point to any comparable achievement.

At the turn of the century, pneumonia and influenza, taken together, and tuberculosis were far out ahead as the leading causes of death. Today they have been pushed down to sixth and seventh places, respectively, with death rates less than one fifth and one sixth of what they were in 1900.

If our would-be overseers in Washington had made similar progress in the art of government, we might look on their pretensions in the field of health with less fear of the consequences!

Dread diseases like typhoid, diphtheria and smallpox —which 50 years ago took a heavy toll in sickness and death—virtually have been eliminated as national health problems, and all the infectious diseases have been brought under effective methods of prevention, control and treatment.

The fight against disease and premature death is of significance and dramatic interest to every man, woman and child in our country. It is being waged today with weapons which were largely unknown or undeveloped in 1900—new and revolutionary methods of examination, diagnosis and treatment; new drugs, new anesthetics, new surgical technics, new vaccines and serums, new facts about nutrition, new kinds of equipment and facilities, new methods of sanitation, public hygiene and medical education. A vital part of the great advance has been the continual expansion and improvement of our hospital system and the constant raising of standards in our medical schools. Yet only recently, the advocates of a government-controlled medical system had the amazing effrontery to castigate American medicine because, they asserted, there were more schools of medicine in 1900 than there are today.

The truth is that in 1900 the American landscape was dotted with scores of unaccredited, second and third rate medical schools, many of which were actually diploma mills for the production of quack doctors.

Is that the condition to which these political medicine men would have us return?

Today, as a result of the American Medical Association's fight for higher standards, that dangerously deplorable situation has been eradicated—and we now have 79 class A medical schools with approximately 25,000 students. And the number of doctors in America is increasing at a more rapid rate than the general population.

The misleading propaganda which has emanated from Washington on this issue is an affront to the American people's intelligence. Typical of this flagrant misrepresentation is the attempt to create a crisis over an alleged doctor shortage in this country. The simple truth is that the ratio of doctors to population is higher in the United States than in any nation on earth except Israel, where the unfortunate refugee doctors of all Europe are gathered. It is equally true, as we are confident most of the people are aware, that the individual physician today can provide far more medical service than even a decade ago, because of technologic improvements.

Now let us look at a half-century of progress in the hospital field:

In 1900, there were less than 1,000 approved hospitals, with approximately 400,000 beds.

Today there are more than 6,300 registered hospitals, with almost 1,500,000 beds serving more than 16,000,000 patients a year. And the number of hospitals also is increasing steadily.

Finally, in the field of medical economics, the past 20 years have given our nation the new instrument of voluntary health insurance to provide people with prepaid medical care and thereby take the economic shock out of illness.

Today, hundreds of excellent voluntary health insurance plans are available. There are nonprofit plans sponsored by doctors and hospitals. There are commercial plans offered by insurance companies. There are fraternal group plans, labor-sponsored plans and industry-sponsored plans.

This has been one of the great advances in medicine in our times, because it is increasing the availability of medical care to people in all income groups.

Compulsory health insurance is not the answer to this problem. The voluntary way is the American way to cope with the problem—and the people, by their support of the voluntary systems, are demonstrating that fact.

In 1946 there were 40 million Americans enrolled in the voluntary health insurance plans. In 1949 the number had increased to 61 million, and now it is approximately 70 million.

Within the next three years, in the opinion of leading medical economists, 90 million persons will be enrolled in our voluntary prepaid medical plans, and, when that number has been reached, the problem will have been largely resolved.

This, then, is a brief, over-all picture of just one chapter of American accomplishment—the stimulating, hopeful march of medical progress in the past half-century.

Mindful of that astounding progress, we can look forward to even more amazing medical progress in the next half-century, if the American spirit of freedom, initiative and adventure is kept alive.

The doctors believe solutions to current problems of medical care and service can be solved without recourse to legislation, without compulsory payroll taxes and without political pressure.

In the half-century ahead, I think we can expect that doctors and their scientific allies will achieve victory over cancer.

I think we will conquer infantile paralysis, arthritis, rheumatic fever, premature heart disease and high blood pressure.

It is reasonable to expect that pneumonia, influenza, tuberculosis, the common cold and other infectious conditions will be reduced to an absolute minimum by new methods of prevention, control and treatment.

And the years ahead will bring a wealth of new knowledge concerning the human mind as well as the human body.

We are on the threshold of great progress which will do much to alleviate human suffering and to prolong human life. But if we are to achieve this maximum progress in the future, we must keep alive the American spirit and the American methods which have made possible the progress of the past and present.

This is the spirit, and these are the very methods which government domination of medical practice would destroy.

In behalf of American medicine, I want to express my deep appreciation of the wonderful support the medical profession has received from civic groups all over America in its fight for liberty.

Nearly 10,000 national, state and local organizations, with many millions of members, have taken positive action against socialized medicine, and there is a rapidly broadening front against all forms of state socialism as a result of the fight that American medicine has been making.

We are proud to have such outstanding organizations as the American Farm Bureau Federation, the American Legion, the National Grange, the Veterans of Foreign Wars, the General Federation of Women's Clubs, the American Bar Association, the American Council of Christian Churches and thousands of other groups standing beside us in this battle for good medicine and sound Americanism.

With the help of God and the American people, the medical profession will continue to minister to the sick, to relieve human suffering and to uphold the ideals which have made America the hope of freedom-loving people everywhere.

ANTICOAGULANTS IN MYOCARDIAL INFARCTION

FRED J. SCHILLING, M.D.
New York

A series of 120 patients with myocardial infarction were studied on two separate medical services at St. Luke's Hospital. The patients of one service received anticoagulant therapy after admission; those on the other service were treated by the same conservative methods but without anticoagulants. They were observed as controls.

THROMBOEMBOLIC COMPLICATIONS OF MYOCARDIAL INFARCTION

Statistics vary widely on the percentage of thromboembolic complications following myocardial infarction. In 1932 Meakins emphasized the importance of the presence of mural thrombi in myocardial infarction.[1] Blumer's analysis of 81 cases of myocardial infarction revealed embolization as a complication in 40 cases.[2] The reports of Woods and Barnes,[3] Garvin,[4] Nay and Barnes [5] and Spain and Moses [6] have demonstrated the frequency of thromboembolic complications in myocardial infarction and its influence on the immediate mortality.

A few isolated patients with myocardial infarction may have been treated with dicumarol® prior to the time (1942) when Wright started the first careful observation of a series of cases.[7] Since that time Nichol and Page,[8] Peters, Guyther and Brambel,[9] Glueck and others,[10] Parker and Barker [11] and McCall [12] have reported the use of dicumarol® in myocardial infarction; without exception these studies showed a decrease in the over-all thromboembolic complications and mortality.

The committee of the American Heart Association recently reported on a statistical study of 1,031 cases of myocardial infarction.[13] There were 442 controls with a mortality of 23.4 per cent and 589 patients treated with anticoagulants with a mortality of 16 per

From the Department of Medicine, St. Luke's Hospital, Dr. John H. Keating, director.

Albert De Natale, Ph.C., assistant director of the Blood and Plasma Bank, and Miss Sylvia N. Babcock, technician, assisted in this study. John W. Fertig, Ph.D., and Miss Isabel McCaffrey, Department of Biostatistics, School of Public Health, Columbia University, reviewed the statistical information quoted in this article.

1. Meakins, J. C., and Eakin, W. W.: Coronary Thrombosis: Clinical and Pathological Study, Canad. M. A. J. **26**: 18, 1932.
2. Blumer, G.: The Importance of Embolism as a Complication of Cardiac Infarction, Ann. Int. Med. **11**: 499, 1937.
3. Woods, R. M., and Barnes, A. R.: Factors Influencing Immediate Mortality Rate Following Acute Coronary Occlusion, Proc. Staff Meet., Mayo Clin. **16**: 341, 1941.
4. Garvin, C. F.: Infarction in Heart Disease, Am. J. M. Sc. **203**: 473, 1943.
5. Nay, R. M., and Barnes, A. R.: Incidence of Embolic or Thrombotic Processes During the Immediate Convalescence from Acute Myocardial Infarction, Am. Heart J. **30**: 65, 1945.
6. Spain, O. M., and Moses, J. B.: Thrombosis and Embolism of Pulmonary Vessels with Special Reference to Pulmonary Vein Thrombosis, Am. J. M. Sc. **212**: 707, 1946.
7. Wright, I. S.: Experiences with Dicumarol in the Treatment of Coronary Thrombosis, Proc. Am. Federation Clin. Research **2**: 101, 1945; Experiences with Dicumarol in the Treatment of Coronary Thrombosis with Myocardial Infarction, Am. Heart J. **32**: 20, 1946.
8. Nichol, E. S., and Page, S. W., Jr.: Dicumarol Therapy in Acute Coronary Thrombosis: Results in 50 Attacks, with Review of Data on Embolic Complications and Immediate Mortality in Myocardial Infarction, J. Florida M. A. **32**: 365, 1946.
9. Peters, H. R.; Guyther, J. R., and Brambel, C. E.: Dicumarol in Acute Coronary Thrombosis, J. A. M. A. **130**: 398 (Feb. 16) 1946.
10. Glueck, H. I.; Strauss, V.; Pearson, J. S., and McGuire, J.: Combined Heparin-Dicumarol Therapy in Myocardial Infarction, Am. Heart J. **35**: 269, 1948.
11. Parker, R. L., and Barker, N. W.: The Effects of Anticoagulants on the Incidence of Thromboembolic Complications in Acute Myocardial Infarction, Proc. Staff Meet., Mayo Clin. **23**: 361, 1948.
12. McCall, M.: Dicumarol Therapy in Acute Coronary Occlusion with Myocardial Infarction, Am. J. M. Sc. **215**: 612, 1948.
13. This summary is quoted with the permission of Irving S. Wright, M.D., chairman, Committee on the Study of Anticoagulant Therapy in the Treatment of Coronary Thrombosis with Myocardial Infarction, under the auspices of the American Heart Association.

UNIVERSITY OF MICHIGAN LIBRARIES

cent; 9.8 per cent of the controls died after one or more thromboembolic complications. However, these complications accounted for only 3.8 per cent of the deaths in patients of the treated group. Thromboembolic complications developed in 26 per cent of the control series, as compared with 10.9 per cent of the treated group. Of the latter, 3.6 per cent experienced their first complication before they had received anticoagulants and 1.2 per cent before dicumarol® had its effect. Only 15.6 per cent of the treated group received heparin plus dicumarol.® The Committee believes that the present incidence of thromboembolic complications in the treated group is to a considerable degree due to inadequate dicumarol® dosage. They conclude that anticoagulants should be used in all cases of myocardial infarction provided contraindications do not exist.

METHOD OF PROTHROMBIN AND COAGULATION TIME DETERMINATIONS

The prothrombin technic of the Link-Shapiro modification of Quick's method, using rabbit lung as the source of thromboplastin, was used.[14] The whole

TABLE 1.—*Average Age in Myocardial Infarction*

Group	Total Cases	Average Ages
Treated	60	59.2
Male	46	57.5
Female	14	64
Untreated	60	60.3
Male	45	60.1
Female	15	60.8

TABLE 2.—*Sex and Age Distribution with Case Fatality*

	Cases		Deaths		Case Fatality (%)	
	Treated	Untreated	Treated	Untreated	Treated	Untreated
Both sexes	60	60	10	24	16.7	40.0
Under 50 years	11	14	2	2	18.2	14.3
50 to 59 years	19	10	2	3	10.5	30.0
60 to 69 years	22	22	3	10	13.6	45.5
70 and over	8	14	3	9	37.5	64.3
Male	46	45	5	15	10.9	33.3
Under 50 years	10	11	2	1	....	....
50 to 59 years	16	7	1	1	....	....
60 to 69 years	17	18	2	8	....	....
70 and over	3	9	0	5	....	....
Female	14	15	5	9	35.7	60.0
Under 50 years	1	3	0	1	....	....
50 to 59 years	3	3	1	2	....	....
60 to 69 years	5	4	1	2	....	....
70 and over	5	5	3	4	....	....

plasma prothrombin time and 12.5 per cent plasma prothrombin time (made by diluting whole plasma with isotonic sodium chloride solution) were performed during anticoagulant therapy (heparin and dicumarol®). The three tube Lee-White method was used to determine the coagulation time. With this method the normal coagulation time is six to nine minutes.

DETERMINATION OF ANTICOAGULANT DOSAGE

At the start of this series dicumarol® alone was used. For reasons to be stated later herein the initial use of combined heparin and dicumarol® is now advocated. When the 12.5 per cent prothrombin time is prolonged to a therapeutic range by dicumarol,® treatment with heparin is stopped and that with the former drug continued. In patients with severe myocardial infarction and those in deep shock heparin alone is used. As the patient's condition improves and shock subsides, dicumarol® is also given. In a routine case of myocardial infarction, a history is first obtained regarding blood dyscrasias, hepatic insufficiency and disease of the intestinal and urinary tract. Decreased renal function decreases the elimination of dicumarol® and is a contraindication to its use. When renal function is diminished, dangerously prolonged prothrombin times are rapidly obtained.

If the history is negative for contraindications to anticoagulants, blood is taken for tests of coagulation time, whole plasma, 12.5 per cent plasma prothrombin time and urea nitrogen. A complete urinalysis is also performed. Heparin (50 mg.) is administered intramuscularly every four hours. I have found the interrupted method of heparin administration practical. When aqueous heparin is given intramuscularly with a long needle there is little pain and rapid absorption. When the urine is normal and urea nitrogen and prothrombin determinations are considered within normal limits 200 mg. of dicumarol® is given. When the two anticoagulants are given simultaneously there is a rapid rise in prothrombin time as a result of the combined action of heparin and dicumarol.® In simultaneous administration I therefore feel more secure in giving 200 mg. of the latter drug initially instead of 300 mg., the amount which is conventionally given when dicumarol® is used alone.

Heparin administered parenterally has an instantaneous effect on the coagulation and whole plasma prothrombin times. After a therapeutic dose of dicumarol® (200 mg.) there is usually a lag phase of approximately forty-eight hours before its hypoprothrombinemic effect is measurable. When therapeutic amounts of the two anticoagulants are given simultaneously to obtain an immediate anticoagulant effect, the 12.5 per cent plasma prothrombin time is the best guide to dicumarol® therapy during the first forty-eight hours. This is because the 12.5 per cent plasma prothrombin time is only slightly affected by heparin, whereas the whole plasma prothrombin time is decidedly prolonged. If dicumarol® is given according to the prolongation of the whole plasma prothrombin time or decreased whole plasma prothrombin activity during this period, the dosage will be insufficient because the prolongation of the whole plasma prothrombin time may be due to the heparin. Therefore, whether heparin is administered continuously by intravenous drip or intermittently during the lag phase of dicumarol® action (first forty-eight hours) the prolongation of the 12.5 per cent plasma prothrombin time is the most accurate guide to the hypoprothrombinemic effect of dicumarol.®

De Natale and I have demonstrated the presence of naturally occurring inhibitors and accelerator substances in diseases associated with thrombosis, necrosis and inflammation.[15] Therefore unusual combinations of whole plasma and 12.5 per cent plasma prothrombin times may exist. In myocardial infarction we have illustrated the presence of an autoanticoagulant-like substance within twenty-four hours of the onset of the infarct and continuing until it is resolved. This substance causes a prolongation of the whole plasma prothrombin time (decreased whole plasma prothrombin activity). These same conditions produce relatively no effect on the 12.5 per cent plasma prothrombin time.

From experience with each particular batch of thromboplastin, the therapeutic 12.5 per cent range of hypoprothrombinemia is obtained. This is two to three times the normal value. Dicumarol® dosage is then

14. Campbell, H. A.; Smith, W. K.; Roberts, W. L., and Link, K. P.: Studies on Hemorrhagic Sweet Clover Disease: Bioassay of Hemorrhagic Concentrate by Following Prothrombin Level in Plasma of Rabbit Blood, J. Biol. Chem. **138**: 1, 1941.

15. Schilling, F. J., and De Natale, A.: Naturally-Occurring Anticoagulants and Accelerator Substance in Human Blood, Am. J. M. Sc. **218**: 70, 1949.

determined from the degree of prolongation of the 12.5 per cent prothrombin time. If in these cases one prescribes dicumarol® according to the whole plasma prothrombin time or activity, an insufficient quantity of the drug to produce a true hypoprothrombinemia may be administered. If the 12.5 per cent plasma prothrombin time is not adequately prolonged, thromboembolic complications may occur.

Prothrombin determinations are performed daily. However, when the daily dose of dicumarol® varies only slightly, prothrombin determinations are performed less frequently. Treatment with the drug is continued until the patient is allowed out of bed or for four weeks after a thromboembolic episode.

Vitamin K is given routinely when the dilute prothrombin time of the patient is prolonged beyond the therapeutic zone for longer than twenty-four hours. Ten to seventy milligrams of vitamin K is given intravenously, depending on the degree of prolongation of the dilute prothrombin time. Within twenty-four hours there is usually a favorable response of the prothrombin time to a safe level. Should the dilute prothrombin time continue to be prolonged, administration of vitamin K may be repeated.

trol series herein reported there is 1 case of pulmonary infarction occurring within forty-eight hours of the myocardial infarct.

SELECTION OF CASES

All patients admitted to St. Luke's Hospital with typical electrocardiographic, laboratory and clinical observations substantiating myocardial infarction from December 1946 through January 1949 were included in this series. The medical department is divided into two services. The A service was designated as the one in which patients would receive anticoagulant therapy. Patients on the B service were to be observed as controls. In the latter group an effort was made to learn what occurs to the clotting mechanism of a patient with myocardial infarction. Similar general therapeutic methods prevail in both services in relation to the treatment of myocardial infarction. When obvious necessity for anticoagulant therapy occurred in the control series, these patients received such therapy.

All cases of myocardial infarction were included in this series regardless of how long the patient lived after admission. This naturally increases the over-all mortality, for those with severe acute infarctions are

TABLE 3.—*Mortality in Myocardial Infarction from Thromboembolic and Other Complications*

		Deaths Due to Infarction							
		Number				Percentage of Total Cases			
			Associated Conditions *				Associated Conditions *		
Group	Total Cases	Total	Teb. Compl. Only	Teb. Compl. and Other	Other	Total	Teb. Compl. Only	Teb. Compl. and Other	Other
Treated	60	10	0	2	8	16.7	0	3.3	13.3
Postmortem Examination	..	5	..	..	..	....	..	...	....
Untreated	60	24	11	0	13	40.0	18.3	0	21.7
Postmortem Examination	..	16	..	..	..	....	..	...	....

* Teb. denotes thromboembolic; other includes: heart failure, ventricular tachycardia, uremia and undetermined complications.

OBJECTIVES OF ANTICOAGULANT THERAPY IN MYOCARDIAL INFARCTION

The primary objectives one attempts to accomplish through the use of anticoagulants are: (1) prevention of mural thrombi; (2) prevention of thrombophlebitis; (3) through the successful prophylaxis of the two preceding conditions, prevention of peripheral, cerebral, pulmonary and other emboli (pulmonary venous and arterial thrombosis should be also prevented by anticoagulant therapy), and (4) prevention of distal or retrograde extension of the thrombus within the coronary artery.

The principal disadvantages of anticoagulant therapy are: (1) the disturbing factor of frequent venipuncture and intramuscular injections during the initial phase of the infarct, when isolation and strict bed rest are essential; (2) the high cost of heparin; (3) the necessity for accurate prothrombin determinations, which entail expensive equipment and trained personnel, and (4) the possible factor of capillary bleeding with hemorrhage and closure of the lumen of arteriosclerotic coronary arteries which are vascularized.

De Natale and I advocate heparinization immediately after myocardial infarction, as there exists at that time a state of hypercoagulability.[15] Through accurate prothrombin determinations we have revealed this state of hypercoagulability to exist immediately preceding and for twenty-four hours after the infarct. During the phase of hypercoagulability any of the four preventable thromboembolic complications may occur. In the

included. Anticoagulant therapy has little to offer in lowering the mortality during the first forty-eight hours after the infarction.

RESULTS IN MYOCARDIAL INFARCTION, 120 CASES

In the two similar groups of patients with myocardial infarction the average age for the anticoagulant-treated group was 59.2 years and for the untreated group 60.3 (table 1). There is no significant difference in age between the male and female patients.

Table 2 illustrates the sex and age distribution with case fatality of both the treated and the untreated groups. In the treated group there were 46 males and 14 females; the untreated group included 45 males and 15 females. The sex difference is comparable for both groups. The case fatality for the treated group is 16.7 per cent (males 10.9 per cent and females 35.7 per cent). For the untreated group the case fatality is 40.0 per cent (males 33.3 per cent and females 60.0 per cent).[16] The cases are distributed fairly evenly for each age period.

The mortality in myocardial infarction from thromboembolic and other complications is seen in table 3. With 60 cases in each of the two groups, the deaths are 10 for the treated and 24 for the untreated group. There were 5 postmortem examinations in the treated group and 16 in the untreated group. In the treated group there were no deaths primarily due to thrombo-

16. In a review of the mortality in myocardial infarction at St. Luke's Hospital for the years 1941 to 1945, inclusive, during which time anticoagulants were not used, there was a mortality of 26 per cent.

UNIVERSITY OF MICHIGAN LIBRARIES

embolic complications, but in the untreated group there were 11 deaths associated with this complication. In the treated group there were 2 fatalities due to thromboembolic complications in addition to other complications. In other words, 18.3 per cent of the total untreated patients died with an associated thromboembolic complication. This is both clinically and statistically a significant difference between the two groups. Anticoagulants are responsible for this difference.

TABLE 4.—*Cases and Deaths According to the Type of Thromboembolic Complication*

Thromboembolic Complications	Cases with Thromboembolic Complication	Deaths Due to Myocardial Infarction	
		Thromboembolic Complication Only	Thromboembolic Plus Other Complications
Treated group	3	0	2
Cerebrovascular accident	1	0	0
Extension of coronary artery thrombosis	1	0	1*
Pulmonary infarction	1	0	1†
Untreated group	15	11	0
Mural thrombi (only)	3	3	0
Pulmonary infarction	3	1	0
Mural thrombi plus pulmonary infarction	2	2	0
Extension of coronary artery thrombosis	2	1	0
Mesenteric infarction	2	2	0
Visceral infarction	2	1	0
Femoral embolism plus cerebrovascular accident	1	1	0

* Heart failure was present, and an inadequate amount of dicumarol‡ was administered.
† Hospitalized on twelfth day; ventricular tachycardia present; patient died fourteenth day.
‡ Registered trade mark.

Table 4 presents cases and deaths according to the type of thromboembolic complication. When this complication occurred in the treated group it was in association with other complications. In the untreated group there were 15 cases of thromboembolic complication, 11 fatal. Three postmortem examinations showed mural thrombi only. Pulmonary infarction occurred in 3 patients, and 1 died. Mural thrombi were present in 2 fatal cases of pulmonary infarction. In 2 patients there was extension of the coronary thrombus, and 1 died. Two patients died of mesenteric infarction. Infarction of viscera occurred in 2 patients, and 1 died. Femoral embolus associated with a cerebrovascular accident occurred in 1 patient who died. In the treated group 1 cerebrovascular accident occurred in a patient receiving dicumarol® therapy. At the time of the accident his prothrombin time was well within a therapeutic range of dicumarol effect. This patient survived.

TABLE 5.—*Incidence of Thromboembolic Complications*

	Total Cases	Cases with Thromboembolic Complications	
		Number	Percentage of Total
Both Sexes			
Treated	60	3	5.0
Untreated	60	15	25.0
Male			
Treated	46	2	4.3
Untreated	45	11	24.4
Female			
Treated	14	1	7.1
Untreated	15	4	26.7

Extension of a coronary artery thrombosis occurred in 1 patient. This patient also had heart failure and died. Analysis led me to believe that not enough dicumarol® had been administered in this case. One patient of this group was admitted to the hospital on the twelfth day of his myocardial infarction. At this time he also had ventricular tachycardia, which was never changed by quinine and quinidine therapy. He was started on heparin therapy, and a pulmonary infarction developed on the fourteenth day of disease, when he died.

Table 5 presents the incidence of thromboembolic complications of the two groups. Thromboembolic complications occurred in 5 per cent of the treated group and in 25 per cent of the untreated group. The difference of 20 per cent in complications solely through the use of anticoagulants is both clinically and statistically significant. The difference in frequency and type of thromboembolic complication occurring in the two groups is of great importance, but that in the sex distribution of this complication is not noteworthy.

TABLE 6.—*Type of Anticoagulant Administered and Complications*

Anticoagulant	Cases	Deaths		
		Total	Thromboembolic Complication	No Thromboembolic Complication
Heparin and dicumarol*	31	4	0	4
Dicumarol* only	26	5	1†	4
Heparin only	3‡	1	1‡	0
Total	60	10	2	8

Complications§ of Dicumarol* Therapy

	Cases
Hematuria	1
Urticaria	1

* Registered trade mark.
† Heart failure also present as a complicating condition; an inadequate amount of dicumarol* was administered.
‡ Heparin started on twelfth day; patient died on fourteenth day from pulmonary infarction and ventricular tachycardia.
§ Vitamin K 15 mg. given intravenously for excessively increased prothrombin times in 5 cases.

The type of anticoagulant administered to the treated patients and the development of thromboembolic complications is seen in table 6. Heparin and dicumarol® as combined therapy were given to 31 patients in whom thromboembolic complications did not occur. Dicumarol® was administered alone to 26 patients, and 1 died of a thromboembolic complication. Heparin alone was used in 3 cases, with 1 fatal thromboembolic complication. Both patients who died had other complications. No significant conclusions can be drawn regarding the relative value of the different types of anticoagulant therapy on the basis of so few patients.

Dicumarol® caused hematuria in 1 case and proved urticaria in another. Vitamin K, 15 mg., was administered intravenously to 5 patients because they had excessively increased prothrombin times.

Table 7 shows the average number of days elapsing between the onset of the myocardial infarct and the initiation of anticoagulant therapy. Approximately 2 to 2.5 days elapsed before the patient was hospitalized and anticoagulant therapy was started. If dicumarol® alone was administered, approximately four to five days elapsed before the patient had satisfactory protection from this drug. During this period mural thrombi and other thromboembolic complications may develop. In this series 26 patients received dicumarol® and none had thromboembolic complications within four days.

Table 8 gives the incidence of anterior and posterior coronary artery thrombosis, which were present in 61 and 59 of the cases, respectively. Hypertension existed in 54 cases and was present about equally in each group. Diabetes mellitus occurred in 9 patients. Digitalis was used in 16 treated and 8 untreated patients.

TABLE 7.—*Average Days After Myocardial Infarction When Anticoagulant Therapy Was Started*

Both Sexes	Cases	Average Lapse of Days
Under 50 years	11	2.1
50 to 59 years	19	2.0
60 to 69 years	22	2.5 (1 case 12 days)
70 and over	8	2.3
Total	60	

Quinidine was used in 8 treated and 11 untreated patients. Digitalis and quinidine were used in combination in 6 cases. Previous myocardial infarction was evident in 14 cases from clinical history, electrocardiographic analysis and postmortem observations.

SUMMARY

The incidence of thromboembolic complications associated with myocardial infarction is discussed. A brief review of the literature pertaining to the use of anticoagulants in myocardial infarction is presented.

The Link-Shapiro method of whole and 12.5 per cent dilute plasma prothrombin times was used throughout this series. The 12.5 per cent plasma prothrombin time was found to be the most accurate guide to anticoagulant therapy. The whole plasma prothrombin time was found to be affected by heparin and conditions associated with thrombosis, necrosis and inflammation. The 12.5 per cent plasma prothrombin time is affected little by these factors. When the 12.5 per cent plasma prothrombin time is prolonged two to three times the normal, dicumarol® appears to have its desired, safe anticoagulant effect.

The objectives and disadvantages of anticoagulant therapy are stated. Use of heparin is advised in all cases of myocardial infarction because of a state of hypercoagulability existing at the onset of the infarction. Because of the delayed action of dicumarol® thromboembolic complications may develop before the drug exerts its anticoagulant effect.

TABLE 8.—*Incidence of: Complications in Treated and Untreated Groups*

	Treated	Untreated	Cases
Total	60	60	120
Anterior coronary thrombosis	28	33	61
Posterior coronary thrombosis	32	27	59
Hypertension	26	28	54
Diabetes mellitus	5	4	9
Digitalis	16	8	24
Quinidine	8	11	19
Digitalis and quinidine	1	5	6
Previous myocardial infarction	6	8	14

A series of 120 cases of myocardial infarction is reported. All patients were treated by conventional methods, except that 60 received anticoagulants and the other 60 did not, and were simultaneously observed for changes in the coagulation and prothrombin time. The case fatality rate for the treated group was 16.7 per cent and for the untreated group 40.0 per cent. In the control series of patients with myocardial infarction 18.3 per cent died of associated thromboembolic complications. In the treated series no one died from thromboembolic complications. However, 3.3 per cent of this group died from thromboembolic complications in association with other complications. The difference in mortality in myocardial infarction associated with thromboembolic complications in the two groups is significant. Eleven of the untreated group in whom there developed thromboembolic complications died as compared to none for the anticoagulant group. The incidence of thromboembolic complications in the control group was 25 per cent, as compared with 5.0 per cent in the treated group. Again, this is both clinically and statistically significant.

CONCLUSIONS

1. Heparin and dicumarol® therapy is advised in all cases of myocardial infarction provided no contraindications to use of anticoagulants exist.

2. Patients with myocardial infarction receiving anticoagulants have a significantly lower incidence of thromboembolic complications than those treated in the usual manner without anticoagulants.

3. It should be understood that anticoagulants should be administered only by persons having access to accurate, reliable facilities for prothrombin determinations. Those using heparin should be able to properly perform and evaluate clotting time tests. The physician responsible for anticoagulant therapy should be familiar with the pitfalls and finer ramifications of this therapy.

USE OF SLOWLY ABSORBED SUSPENSION OF *d*-TUBOCURARINE CHLORIDE IN TRAUMATIC INJURY

JOHN D. FULLER, M.D.
Santa Cruz, Calif.

Regardless of the severity or extent of acute traumatic injuries, muscle spasm is frequently the symptom which causes greatest distress to the patient. Even when treatment has been commenced or actually satisfactorily concluded, it is frequently necessary to provide such patients with repeated doses of a narcotic in order to relieve pain. Every physician who has had occasion to treat many patients with acute traumatic injury has had the experience of being called one to three hours later, either from the patient's home or the hospital, because of ineffectiveness of analgesics or short duration of effect.

The relaxation of voluntary musculature obtained by the use of curare is well known to the members of the medical profession. Until recently, however, two factors prevented its use in emergency and outpatient clinics or in circumstances in which either the physician or a trained anesthetist was not available for more or less constant supervision until the effects of the drug had worn off. There were: (1) certain unpredictable variations in clinical action of the drug, evidently due to impurities present in the alkaloid as commercially available, and (2) the short duration of the drug effect, especially in sub-subjective dosage.

Both these objections have now been completely eliminated with the development of a crystalline *d*-tubocurarine alkaloid of over 99 per cent total purity and the incorporation of this alkaloid in a slow absorption base capable of delivering a clinically effective dose of *d*-tubocurarine chloride at a constant rate below the

UNIVERSITY OF MICHIGAN LIBRARIES

subjective symptom level. The pure alkaloid [1] has for the first time provided unvarying clinical reaction to such an extent [2] that dosage may be calculated directly in terms of milligrams of *d*-tubocurarine chloride per kilograms of body weight; results are predictable in every case, and unpredictable side effects do not occur.

For clinical study I have used a microform emulsion of this pure *d*-tubocurarine alkaloid in a repository menstruum containing 25 mg. of *d*-tubocurarine chloride per cubic centimeter.[3] This material is readily injectable, produces its effect in forty to forty-five minutes and continues to give effective medication over periods ranging from twelve to twenty-four and more hours:

Its safety has been demonstrated by intramuscular injections in a series of dogs weighing 17 Kg. (± 38 pounds).[4] As the dosage of the implanted suspension was increased throughout the series, the actual weight of the dogs "increased" theoretically (in terms of *d*-tubocurarine milligrams in aqueous solution) from a calculated 113 Kg. (250 pounds) upward to 454 Kg. (1,000 pounds), without the intervention of artificial respiration. Dosages increasing this theoretic weight to over 907 Kg. (2,000 pounds) required the intervention of artificial respiration, during the peak of objective curarization, although no animal death occurred as the result of massive curarization in this series. Small animal work (performed as an accessory to observations in the dogs) showed a comparable degree of safety of the holding menstruum and demonstrated a significant degree of superiority, in all respects, over other somewhat similar preparations concomitantly tested in these animals.

Injection of this material in human beings has produced none of the allergic manifestations or painful local reactions commonly observed after injections of Romansky formula mixtures. A large experience has been had with this particular preparation by H. D. Jonez, M.D.,[5] of Tacoma, Wash., in the treatment of patients with multiple sclerosis on both an inpatient and outpatient basis. In his series undesirable subjective symptoms were not noted and unfavorable side reactions did not manifest themselves.

In twenty-four consecutive injections (given by me) of *d*-tubocurarine chloride suspension in a slowly absorbing menstruum,[3] absorption sufficient to relieve muscle spasm and its attendant pain was achieved in all cases within forty-five minutes, and this clinically effective level was maintained twelve to twenty-four hours afterward; in no case was there pain or discomfort at the site of injection or any unpleasant subjective manifestations of curarization.

In no case was codeine, morphine or any other narcotic or sedative agent used or deemed necessary to supplement the *d*-tubocurarine; yet it will be obvious from the following case reports that not only was relief of pain adequate, and probably better than could have been obtained with narcotics, but that this relief continued over twelve to twenty-four hours without limiting the activity of the patient by narcotic effect or masking other pain not due to muscle spasm.

Dosage in every case was determined by body weight and was given on the basis of 1.25 cc. of a suspension containing 25 mg. per cubic centimeter for each 70 Kg. of body weight (equivalent to 31.25 mg. of *d*-tubocurarine chloride per 70 Kg. body weight or 4.464 mg. per kilogram of body weight).

1. Klein, D., and Gordon, S. M.: Determination of *d*-Tubocurarine Chloride, J. Am. Pharm. A. **38**: 438 (August) 1949.
2. Luthy, N. C., and Gill, R. C.: Objective Physical-Chemical Methods for Determination of *d*-Tubocurarine Chloride, read before the Division of Medical Chemistry of the American Chemistry Society, Philadelphia, April 10, 1950.
3. Each cubic centimeter of tubadil (Endo) represents: *d*-tubocurarine chloride pentahydrate, 25 mg.; oxycholesterol derivatives, 312 mg.; white wax, 20 mg.; chlorobutanol, anhydrous, 5 mg., and peanut oil, 562 mg. (0.61 cc.).
4. Neff, W. B.: Personal communication to the author.
5. Jonez, H. D.: Multiple Sclerosis and Allergy Management with Histamine and *d*-Tubocurarine, Ann. Allergy **6**: 550 (Sept.-Oct.) 1948; also paper read at Fifth Annual Session American College of Allergists, Chicago, April 14-17, 1949, to be published.

REPORT OF CASES

Case 1.—E. S., a man aged 22, was brought to the Emergency Hospital Sept. 23, 1949, after a steel ramp had fallen on his back and knocked him to the ground. He had severe spasms of the upper abdominal muscles and lower anterior chest muscles due to the forcible doubling up of his body. He had severe pain on motion, coughing and deep breathing. Other than contusions, there was no injury to the abdomen or chest. However, there was a fracture of the upper cervical portion of the spine. His pain was so intense as to make it impossible for him to remain quiet. He was given 0.95 cc. (23.75 mg.) of *d*-tubocurarine chloride in a repository menstruum at 7:30 p. m.; by 8:10 p. m. he had remarkable freedom from all pain. He slept comfortably that night and at 4:15 p. m. on September 24 still felt relief and had no spasms of abdominal or thoracic muscles. The dose of *d*-tubocurarine chloride was repeated at 4:35 p. m., with relief of pain that night and the entire following day, at which time there was so little rigidity of the neck that an orthopedic surgeon called in consultation refrained from other treatment than bed rest for the fractured vertebrae. At no time was a narcotic or other sedative given or required.

Case 2.—T. A. F., a man aged 71, was involved in an auto accident April 10, 1949 and injured his right arm. Examination showed a strain and contusion of the right arm and shoulder muscles with painful spasms in the pectoral and deltoid groups. This patient was given 1.2 cc. (30 mg.) of *d*-tubocurarine chloride in a slow absorption matrix at 3:30 a. m. He had relief from muscle spasm after 4 a. m. and did not have cramps or distress, except pain on full range of motion of the arm, by 5 p. m. April 11. There were no subjective signs or symptoms of curarization.

Case 3.—P. F., a man aged 46, on May 4, 1949 had pain of one day's duration in the right hip and leg. A diagnosis of right sacroiliac strain with referred pain and muscle spasm was made by another physician. Injection of the right sacrolumbar area with 0.25 per cent butacaine sulfate solution gave no relief in two hours. The patient had intense spasms in the right thigh and was unable to walk or drive. He was given 1.25 cc. (31.25 mg.) of *d*-tubocurarine chloride in a slow absorption matrix at 4 p. m. There were no spasms after 4:25 p. m., and the patient was able to drive 40 miles to his home. He reported the next day that he was free from pain and had not had any cramps or pain after 5 p. m. of May 5.

Case 4.—M. F., a woman aged 21, complained June 30, 1949 of "sprained back" with sacroiliac pain of four days' duration, so severe that the patient was unable to sleep and that riding in an automobile caused extreme distress. When seen, she was crying with pain and exhaustion. She was given 1.25 cc. (31.25 mg.) of *d*-tubocurarine chloride in a slow absorption matrix intramuscularly at 11:24 a. m. At 12:09 the patient had complete relaxation with relief of pain; she left for her home about 90 miles distant by automobile at 4 p. m. In a letter she stated: "The pain was as comfortable as possible; I was very relaxed, as though intoxicated: my eyes would not focus easily, but then the pain was not as intense either." The patient slept that night with little pain and by the following morning had no symptoms.

Case 5.—H. C., a woman aged 32, on July 16, 1949 had a sudden onset of severe pain in the right shoulder, apparently caused by her posture while sleeping. She was unable to sit quietly or to lie down with the shoulder toward the bed. Her pain was so severe that she wanted to hurt her shoulder by squeezing it; she was given 1.5 cc. (37.5 mg.) of *d*-tubocurarine chloride in a slow absorption matrix at 5:32 p. m.; she received complete relief by 6:25 p. m. and was then able to move freely and lie down comfortably. She spent a comfortable night and had no pain by the following morning.

Case 6.—A. E., a man aged 44, on July 26, 1949 complained of pain in the right leg and shoulder after "roughhouse" and had decided and painful spasm in the right deltoid, sternomastoid and trapezius muscles. He was given 1.2 cc. (30 mg.)

of *d*-tubocurarine chloride in a slow absorption matrix intramuscularly at 3:50 p. m. Decided improvement in the head motion and pain had occurred by 1:35 p. m. and lasted twenty-four hours; he reported that his muscles were relaxed but that he was able to control his body perfectly. Ocular symptoms were not noted. On July 27 the patient was still having some pain and spasm in the right side of the neck and was again given 1 cc. (25 mg.) of *d*-tubocurarine chloride in a repository menstruum intramuscularly at 4:15 p. m. with similar relief, lasting another twenty-four hours; the pain then was not severe enough to warrant further treatment.

CASE 7.—R. R., a man aged 48, in the early morning of July 27, 1949 had severe pain in the right sacroiliac region. Physical examination showed tenderness over the right sacroiliac joint and severe muscle spasm in the right hip and lower back. The patient was unable to turn over in bed, to stand or to walk without excruciating pain. He was given 1.5 cc. (37.5) mg. of *d*-tubocurarine chloride in a slow absorption matrix at 12:25 p. m. He experienced complete relief by 1:45 p. m., when he was able to get up, walk and sit comfortably in a chair without any pain whatever. He exclaimed: "This is miraculous!" The following morning the patient again had pain as before but not so severe, and the pain did not begin until after 7 a. m. At 9:15 a. m. he was again given 1.5 cc. (37.5 mg.) of *d*-tubocurarine chloride in a repository menstruum intramuscularly. By 10 a. m. the patient had complete relief; he has had no pain since.

CASE 8.—E. M., a woman aged 55, was thrown from a horse Aug. 11, 1949 and fractured the two lower ribs anteriorly. She had severe bruising of the left flank and hip with extreme tenderness there and painful muscle spasm as well as pain on breathing and coughing from the fractured ribs. She was given 1.1 cc. (27.5 mg.) of *d*-tubocurarine chloride in a slow absorption matrix at 2:59 p. m. Relief of muscle spasm occurred in forty-five minutes and lasted twenty-four hours, but the patient had to have the left side of her chest taped to relieve pain from coughing at the end of that time.

CASE 9.—D. P., a boy aged 12, on July 30, 1949 was seen with a torticollis which had begun two hours before admission. He was unable to lie down or be comfortable in any relaxed position. At 7:53 p. m. he was given 0.7 cc. (17.5 mg.) of *d*-tubocurarine chloride in a repository menstruum intramuscularly. At 8:45 p. m. he had complete relaxation of the neck muscles and was able to lie down and sleep normally. He slept until the following morning with no complaints; on awakening he stated that his neck was still slightly stiff, but he was able to turn it in all directions.

CASE 10.—R. R., aged 32, slipped Sept. 3, 1949 and twisted, hurting the back and thigh. There was pronounced pain on bending forward, sitting or moving about. The patient was even unable to lift the arms to comb hair without so much muscle spasm as to stop the effort. There was muscle spasm over the right sacroiliac region. The patient was given 1.1 cc. (27.5 mg.) of *d*-tubocurarine chloride in a repository menstruum at 4:23 p. m.; at 5:10 p. m. there was complete relief of pain except on bending forward; the patient was able to cough, raise arms to full extension above the head, sit in a chair and walk without pain. This relief continued until 9 a. m. the following day; no later report was available.

CONCLUSIONS

1. Much of the pain seen in acute trauma is due to muscle spasm. This can be adequately controlled over long periods by the action of curare without the narcotizing and masking effect of morphine or other narcotics.

2. Pure crystalline *d*-tubocurarine alkaloid is commercially available. Its incorporation in a slow absorption medium produces a remarkably steady hourly output of the drug into the system and carries such a high factor of safety that the drug may be readily given to outpatients.

3. Dosage and clinical action may be adequately and easily controlled. Clinical action is rigidly predictable.

4. It is believed that the use of pure *d*-tubocurarine chloride in an adequate slow absorption medium will add materially to the armamentarium of the general practitioner and the surgeon in the treatment of all types of traumatic injury in which muscle spasm is a principal factor in production of pain and that the use of such a preparation will safely give more prolonged relief than can be provided by morphine-like substances.

605 Center Street.

DESOXYCORTICOSTERONE ACETATE AND ASCORBIC ACID INJECTIONS IN RHEUMATOID ARTHRITIS

DAVID H. KLING, M.D.
Los Angeles

Lewin and Wassén [1] have recently reported striking, immediate amelioration in 9 cases of rheumatoid arthritis after intramuscular injection of 5 mg. of desoxycorticosterone acetate followed by intravenous or intramuscular injection of 1,000 mg. of ascorbic acid. The effects consisted of alleviation of pain, increase of range of motion, elevation of skin temperature around the joints and decided exhilaration in some patients. As a rule the effect lasted two to six hours, occasionally more than twenty-four hours. In more acute cases improvement lasted as long as three weeks.

The possibility that a hormone and vitamin combination, readily available at reasonable cost, may approach the effect of the rare and costly cortisone or pituitary adrenocorticotropic hormone (ACTH) has stirred up great interest here and abroad. Within five weeks after this preliminary report was made, seven communications [2] appeared in the *Lancet*. Three investigators enthusiastically supported the claims of Lewin and Wassén. Of their 38 patients only 3 did not respond. Four authors just as emphatically rejected the claims. Of their 34 patients only 4 were improved. Only Spies and co-workers [2c] restricted the sodium intake. No toxic reactions have been reported except by Hart and Starer,[2b] who gave triple or double the recommended doses in the first four days. In the 5 patients under this regimen, they observed only a slight rise in blood pressure and a gain in weight of 5 pounds (2.3 Kg.) in 1 patient. It appears important that the occurrence of dangerous side reactions in my own investigation of this method be stressed.

MATERIAL

Fourteen patients with rheumatoid arthritis who were thoroughly studied for prolonged periods were given intramuscular injections of 5 mg. of desoxycorticosterone acetate followed in a few minutes by intravenous

---

From the Arthritis Clinic of the White Memorial Hospital, College of Medical Evangelists, Los Angeles.

Desoxycorticosterone acetate used in this study was supplied as cortate® by the Schering Corporation, through Dr. W. A. Wright, Associate Director.

1. Lewin, E., and Wassén, E.: Effect of Combined Injections of Deoxycortone Acetate and Ascorbic Acid on Rheumatoid Arthritis, Lancet **2**: 993 (Nov. 26) 1949.

2. (*a*) Deoxycortone Acetate and Ascorbic Acid in Rheumatoid Arthritis, Letters to the Editor, Lancet **2**: 1108 (Dec. 10) 1949. Deoxycortone Acetate and Ascorbic Acid in Rheumatoid Arthritis, Letters to the Editor, Lancet **2**: 1156 (Dec. 17) 1949. Le Vay, D., and Loxton, G. E.: Deoxycortone Acetate and Ascorbic Acid in the Treatment of Rheumatoid Arthritis, Lancet **2**: 1134 (Dec. 17) 1949. Deoxycortone Acetate and Ascorbic Acid in Rheumatoid Arthritis, Letters to the Editor, Lancet **2**: 1202 (Dec. 24) 1949. (*b*) Deoxycortone Acetate and Ascorbic Acid in Rheumatoid Arthritis, Letters to the Editor, Lancet **2**: 1203 (Dec. 24) 1949. (*c*) Spies, T. D.; Stone, R. E.; de Maeyer, E., and Niedermeier, W.: Deoxycortone with Ascorbic Acid Versus Adrenocorticotropic Hormone in Rheumatoid Arthritis, Lancet **2**: 1219 (Dec. 31) 1949. (*d*) Deoxycortone Acetate and Ascorbic Acid in Rheumatoid Arthritis, Letters to the Editor, Lancet **2**: 1244, 1949.

UNIVERSITY OF MICHIGAN LIBRARIES

or intramuscular injections of 1,000 mg. of ascorbic acid. The patients were advised to reduce salt intake. The number of injections varied from one to fourteen. Two patients received daily injections; the rest were given injections two to three times weekly. The ages of the patients ranged from 29 to 64 years and the duration of the disease from 1 to 28 years. The inflammatory activity was severe in 5 patients and only moderately so in 9. Four patients were totally disabled; 2 were able to attend their personal needs. Eight patients carried on their occupation or housework with varying degrees of difficulty. Four patients were not amenable to any treatment for several years. Ten have responded recently to various measures.

RESULTS

One patient showed objective improvement, and 1 had subjective improvement only after the first two injections. Six patients were not improved, and 6 became worse. They had increased pain, soreness and limitation of motion. Five of these had acute flare-ups, with redness and swelling of the joints of the hands and feet after the first injection or subsequent ones. In addition, sudden, large effusions of both knee joints developed in 3. All 6 patients had only moderately severe inflammatory activity. They had recently responded to other treatment. After withdrawal of desoxycorticosterone acetate and ascorbic acid and substitution of other therapy, the inflammation, swelling and effusion subsided.

TOXIC REACTIONS IN THREE CASES

Case 1.—The severest reaction occurred in a bedridden man, aged 53, with advanced arthritis of eighteen years' duration, who had not responded to any therapy for five years. He was given daily injections of desoxycorticosterone acetate and ascorbic acid. His blood pressure, which for many years of observation had been around 100 systolic and 55 diastolic and which was unchanged for the first seven days, rose after the thirteenth injection to 160 systolic and 90 diastolic. There was severe edema of the eyelids, legs and dorsa of the feet. There was clinical and roentgenologic evidence of effusion in the left pleural cavity and congestion of both lungs. The urine excretion was diminished to 500 mm. every twenty-four hours. The heart was enlarged. A teleroentgenogram showed an increase of the transverse diameter to about 18 degrees, as compared with roentgenograms taken previously. In the blood serum the potassium level was 15 mg. and the sodium level 324 mg. per hundred cubic centimeters. Seven days after discontinuation of the treatment and administration of potassium citrate and diuretics the symptoms of heart failure subsided. The blood pressure returned to 120 systolic and 65 diastolic.

Case 2.—A woman 64 years of age had had rheumatoid arthritis for ten years. There were contractions of the hands, feet, knees and shoulders due chiefly to muscle atrophy and spasm. The motion of the joints was definitely limited. The inflammatory activity of the arthritis had been slight for a number of years. Her blood pressure was around 140 systolic and 70 diastolic. She received four injections of 5 mg. of desoxycorticosterone acetate and 1,000 mg. of ascorbic acid every third day. After the first injection, the range of abduction in the right shoulder increased from 40 to 90 degrees. She could elevate both arms almost fully, and she was able to use her hands better. She was not able to stay on a salt-free diet because of nausea and weakness. After the third injection her blood pressure rose to 175 systolic and 80 diastolic; after the fourth injection it reached 185 systolic and 75 diastolic, and after the sixth injection it went up to 205 systolic and 100 diastolic. The serum potassium level was 16.5 and the serum sodium level 326 mg. per hundred cubic centimeters. The treatment was then discontinued, and, three days later, the blood pressure had dropped to 140 systolic and 70 diastolic and her disability had recurred.

Case 3.—A man 54 years of age had had advanced rheumatoid arthritis for eighteen years. He had been bedridden for three years, and the condition was not amendable to various treatments. He received 5 mg. of desoxycorticosterone acetate and 1,000 mg. of ascorbic acid daily for one week. His blood pressure during prolonged observation was around 100 systolic and 60 diastolic and remained unchanged. The next week the dose of desoxycorticosterone acetate was reduced to 2.5 mg. daily. He did not improve, and it was decided to increase the dose again. For two more days he received 5 mg. of desoxycorticosterone acetate. Weakness and soreness of the muscles increased greatly, and he stopped further injections. His blood pressure on the following day was 110 systolic and 60 diastolic. However, the serum potassium level was 14 mg. and the serum sodium level 320 mg. per hundred cubic centimeters.

SUMMARY AND CONCLUSION

Of 14 patients there was objective improvement in only 1. Hypertension developed in 2 patients, complicated by heart failure in 1. One patient showed pronounced muscular weakness and soreness because of a low serum potassium level.

These dangerous reactions make the treatment of rheumatoid arthritis with desoxycorticosterone acetate and ascorbic acid too hazardous, even though striking amelioration had occurred in every case.

1052 West Sixth Street (14)

TREATMENT OF AMEBIASIS WITH BACITRACIN

HARRY MOST, M.D.
J. W. MILLER, M.D.
E. B. GROSSMAN, M.D.
and
NEAL CONAN Jr., M.D.
New York

It has been reported [1] that the administration of sulfonamides or penicillin to patients with amebic colitis is not infrequently accompanied with symptomatic and objective improvement in the course of the infection despite the persistence of Endamoeba histolytica in the stools and the colonic lesions. In fact, many clinicians routinely administer antimicrobial agents in addition to amebicidal drugs at some time in the course of therapy of amebiasis. The presumed rationale for this procedure is apparently the reduction in the total number or the elimination of certain enteric organisms which may invade the amebic lesion or contribute essentially to the maintained growth and pathogenicity of E. histolytica. The role of intestinal bacteria in amebiasis has been the subject of a great deal of speculation, and the difficulty of maintaining cultures of E. histolytica without living bacteria or bacterial filtrates or other protozoa has to date not been entirely overcome. It is in the latter connection that Dr. E. C. Faust [2] observed that when bacitracin was added to cultures of E. histolytica the amebas died more rapidly than the bacteria which the antibiotic was intended to eliminate. Dr. Alfred Longacre [3] then administered bacitracin to patients with amebic colitis and noted the disappearance of amebas accompanied with clinical recovery. The

From the Departments of Preventive Medicine and Medicine, New York University College of Medicine and the New York Regional Office Medical Clinic, Veterans Administration.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

1. Hargreaves, W. H.: Chronic Amebic Dysentery, Lancet **2**: 6, 1945. Ellenberg, M.: Amebiasis: The Role of Bacteria in Symptomatology, Am. J. Digest Dis. **13**: 356, 1946.

2. Faust, E. C.: Personal communication to Dr. Frank Meleney, Presbyterian Hospital, New York.

3. Longacre, A.: Personal communication to Dr. Harry Most.

present study was undertaken to determine the efficiency of bacitracin in the therapy of amebiasis and to correlate, if possible, alterations of bacterial flora with results of therapy. A preliminary statement dealing with the use of bacitracin and aureomycin in amebiasis has already been reported.[4] A more detailed account of the results with aureomycin and other antibiotics will be reported elsewhere.[5]

MATERIAL AND METHODS

The patients studied were either inpatients or outpatients at Bellevue Hospital, New York, the Veterans Administration Hospital, Kingsbridge, N. Y., the New York Regional Office Medical Clinic, the Veterans Administration, New York, and the Tropical Disease Diagnostic Service of the City Health Department, New York, and patients from other sources referred to one of us (Dr. Most) for treatment. The laboratory studies were conducted in the laboratories of the Veterans Administration and the departments of medicine and preventive medicine, New York University College of Medicine. The diagnosis of amebiasis was established by the demonstration of E. histolytica in at least two stool specimens and confirmed by iron-hematoxylin staining. Bacteriologic studies and counts of intestinal organisms were performed by standard culture and dilution methods. Casual specimens of stools were examined for E. histolytica by direct smear and zinc sulfate centrifugal flotation during and after therapy at as frequent intervals as practical, usually weekly for a month after treatment and then monthly at least. One or more series of postcathartic specimens were examined in many cases, and in some this examination was done at the end of three, six, nine and twelve months after therapy, in addition to the casually submitted specimens at weekly or monthly intervals.

RESULTS

Fifty-one patients with amebiasis varying in severity from an asymptomatic condition to fulminating dysentery were treated with bacitracin administered in tablets orally. Total daily doses varied from 40,000 to 120,000 units, and treatment extended for five to twenty days. Thirteen patients were asymptomatic, 30 were mildly symptomatic and the remaining 8 were moderately or seriously ill and required hospital care. The last group had demonstrable ulceration and/or necrosis of varying extent between the sigmoid colon and the anus.

A. *Parasitologic Response.*—Only 3 patients of the 51 treated failed to lose their amebas during therapy with bacitracin. However, subsequent to treatment, 14 additional patients had positive stools again in from six to three hundred and fifty days after the last dose of bacitracin. With four exceptions (84, 135, 282 and 350 days) all the relapses occurred in less than thirty-five days with an average of twenty days from completion of therapy to the first positive stool. Nine patients who relapsed received a second course of therapy, and of these, 6 again relapsed. Three of the latter were treated for the third time, and two failures occurred. In other words, apparent parasitic cure after the first course of treatment occurred in 34 of the 51 patients, or 66 per cent, while additional retreatment had a probability of a successful result of only 33 per cent. Extension of therapy beyond ten days or increase in dose above 80,000 units did not significantly enhance the probability of cure beyond 66 per cent. The patients with continuously negative stools were observed for an average of two hundred and twelve days (only 5 patients for a month or less and more than 50 per cent for six months or more), during which time an average of 12 specimens were examined.

B. *Clinical Response.*—One appreciates the difficulty in evaluating the response to various forms of medication in patients with minor gastrointestinal symptoms. For this reason, our remarks are limited to the 8 moderately or seriously ill patients with severe amebic dysentery and objective mucosal evidence of active disease. In all 8 patients the oral administration of bacitracin was accompanied with striking clinical improvement, control of dysentery within a few days, disappearance of amebas from the stools and surface lesions and complete healing in from four to fourteen days. For example, in 1 patient, an Indian seaman admitted to Bellevue Hospital on May 26, 1948, because of abdominal cramps and bloody diarrhea of a month's duration, it was found on proctoscopic examination that the rectal mucosa was granular, edematous and extensively ulcerated, with several necrotic and gangrenous foci. The stools and scrapings from the ulcers contained large numbers of trophozoites of E. histolytica. Cultures for shigellae and salmonellae were negative. The patient was acutely ill and dehydrated, having had twelve stools in the twelve hour period before therapy was begun. Fifty thousand units of bacitracin was given by mouth daily in divided doses. There were five bowel movements on the first day of treatment and only one on the next and succeeding days. On the third day of therapy the stools and scrapings from the ulcers were negative on saline smear, zinc sulfate flotation, iron hematoxylin stained smears and cultures for E. histolytica. On the fourth day the mucosa was slightly granular and the ulcerations were smaller and clean, and on the eleventh day, except for a slightly congested appearance just inside the sphincter, the mucosa to 15 cm. was normal. Medication with bacitracin was continued for twenty days. No other drug or therapy of any kind was used, with the exception of intravenous injection of sodium chloride solution on the day of admission. A month later the mucosa was normal and postcathartic stools were negative. In another severe case of amebic dysentery, the administration of emetine, iodoquinolines and carbarsone in full therapeutic amounts failed to terminate the acute clinical attack or eliminate E. histolytica from the stools. The daily administration of 80,000 units of bacitracin for thirteen days terminated the attack and resulted in the disappearance of amebas from the stools. A severe relapse occurred nine months later, and on this occasion chloroquine, diiodo-hydroxyquinoline, carbarsone, chloramphenicol and aureomycin failed to terminate the attack. Bacitracin in daily doses of 160,000 units again initiated a clinical and parasitologic remission. In the remaining 6 severe cases therapy with bacitracin resulted in prompt control of symptoms and signs of disease and in disappearance of amebas from the stools. In 3 of these cases E. histolytica reappeared in the stools five, eighteen, and three hundred and fifty days,

4. Most, H.: Recent Advances in the Therapy of the More Common Protozoan and Helminthic Infections of Man, Bull. New York Acad. Med. 25:717, 1949.

5. Most, H.; Miller, J. W., and Grossman, E. J.: Treatment of Amebiasis with Bacitracin and other Antibiotics, Am. J. Trop. Med., to be published.

UNIVERSITY OF MICHIGAN LIBRARIES

respectively, after the last dose of bacitracin, unaccompanied with objective evidence of disease or clinical activity and without symptomatic relapse during a period of observation of one to six months without treatment and with continuously positive stools.

C. *Toxicity.*—We have administered bacitracin to approximately 100 patients. Apparently the drug is little absorbed, if at all. In 5 patients it could not be demonstrated by Dr. Frank Meleney, of the Presbyterian Hospital, New York, in blood and urine specimens collected two or four hours after single doses of 10,000 to 50,000 units. One patient had distention and diarrhea for one day, and another had several liquid stools a day for eight days during therapy.

COMMENT

There is little question from the data presented of the efficacy of bacitracin in terminating acute attacks of amebic dysentery and of its ability to rid the stools of E. histolytica during and after treatment in approximately two thirds of patients treated. Further, this drug may be successful when other agents have failed. The prompt control of symptoms and healing of lesions in severe cases is striking. With regard to the mode of action of this drug, one can only speculate. In view of the fact that the administration of bacitracin is accompanied with disappearance of clostridia and enterococci from the stool, it may be that an essential relationship between these organisms and E. histolytica is disturbed, which unfavorably affects the pathogenicity of amebas to permit healing, or else organisms sensitive to bacitracin which may have invaded amebic lesions are destroyed, resulting in complete healing or in reduction in extent and severity of lesions below clinical significance. In this connection, one can emphasize the complete recovery in severe cases and the reappearance of amebas subsequently without symptoms.

SUMMARY AND CONCLUSIONS

1. Bacitracin given by mouth is an effective agent in terminating acute attacks of amebic colitis. Complete clinical recovery, healing of ulceration and disappearance of amebas occurred in 8 severe cases. In 1 of these clinical and parasitic relapse occurred nine months after therapy, and in 3 parasitic relapse occurred without clinical activity or evidence of disease five, eighteen and three hundred and fifty days after therapy. In 1 severe case bacitracin was effective after other amebicidal drugs and antibiotics, including aureomycin, failed to terminate the infection. Of 43 mildly symptomatic or asymptomatic patients who received one or more courses of bacitracin, apparent cure resulted in 80 per cent. The probability of cure from a single course of treatment is 66 per cent. The recommended dose is 80,000 units daily for ten days. Toxicity from oral medication is negligible.

2. The uniform disappearance of enterococci and/or clostridia during therapy with bacitracin may indicate an important relationship between these organisms and the pathogenesis of clinical amebic colitis.

3. Bacitracin represents an important and potent addition to the agents available in the chemotherapy of intestinal amebiasis. The use of this antibiotic alone or in combination with other amebicidal drugs should materially increase the probability of cure in any given case.

477 First Avenue.

USE OF PENICILLIN O IN PATIENTS HYPERSENSITIVE TO PENICILLIN G

ITALO F. VOLINI, M.D.
WILLIAM H. SHLAES, M.D.
and
OSCAR FELSENFELD, M.D.
Chicago

Keefer and associates [1] in their classic paper on the use of penicillin pointed out that urticaria developed in 3.5 per cent of the patients treated with the antibiotic. Hypersensitivity to penicillin, particularly to the commonly used benzylpenicillin, which is known as penicillin G, has been studied by many authors. During the last years Feldman,[2] Waldo and Tyson,[3] Tunis,[4] Cross,[5] Andrini,[6] Peruccio,[7] and Taillens [8] published reviews on this subject, while the earlier experimental work of McClosky and Smith [9] and Chou and Cutting [10] was confirmed by Spada.[11] The clinical manifestations of hypersensitivity to penicillin G in man present themselves most frequently as papular or vesicular skin eruptions, urticaria and edema in various localities. Syndromes resembling serum sickness, contact dermatitis and the Arthus type reaction are often observed. Animal experiments [12] indicate that penicillin G is a sensitizing agent acting like a hapten in combination with body proteins, especially with serum albumin. This mode of action seems to be confirmed also in man by Salazar Mallen and Cuellar.[13]

Behrens and others,[14] using a biosynthetic method, prepared a series of new crystalline penicillin compounds different from penicillin G. The antibacterial properties were not significantly different from those of penicillin G, and for a long time it appeared that none of the new compounds would offer sufficient advantages to justify its large scale development. How-

Aided by a grant from the Upjohn Company, Kalamazoo, Mich., which also supplied the penicillin O (allylmercaptomethylpenicillin).

From the Hektoen Institute for Medical Research and the Department of Medicine of the Cook County Hospital.

1. Keefer, C. S., and others: Penicillin in the Treatment of Infections: Report of 500 Cases, Division of Medical Sciences, National Research Council, J. A. M. A. **122**: 1217 (Aug. 28) 1943.

2. Feldman, M. D.: Sensitization to Penicillin, Ohio State M. J. **45**: 131, 1948.

3. Waldo, J. F., and Tyson, J. T.: Hypersensitivity to Penicillin, Am. J. Med. **6**: 396, 1949.

4. Tunis, M. M.: Intravenous Procaine Hydrochloride Treatment of Penicillin Sensitivity Reaction Simulating Serum Sickness, Canad. M. A. J. **60**: 289, 1949.

5. Cross, W. G.: Oral Reactions to Penicillin, Brit. M. J. **1**: 171, 1949.

6. Andrini, F.: Grave eritrodermia allergica de penicillina, Riforma med. **63**: 80, 1949.

7. Peruccio, L.: Sulla sensibilizazione alla penicillina, Dermosifilografo **24**: 58, 1949.

8. Taillens, J. P.: Allergisme et méningisme pénicillinique, Ann. d'otolaryng. **65**: 541, 1948.

9. McClosky, W. T., and Smith, M. J.: Experiments on the Sensitizing Properties of Penicillin, Proc. Soc. Exper. Biol. & Med. **57**: 270, 1944.

10. Chou, W. C., and Cutting, W. C.: Allergic Sensitization to Penicillin, Proc. Soc. Exper. Biol. & Med. **63**: 347, 1946.

11. Spada, C.: Ricerche sulla reativita cutanea alla penicillina, Rassegna med. sarda **50**: 56, 1948.

12. McClosky and Smith.[9] Chou and Cutting.[10]

13. Salazar Mallen, J., and Cuellar, O.: Immunological Studies with Sera from Penicillin-Allergic Patients, Ann. Allergy **7**: 1, 1949.

14. Behrens, O. K.; Corse, J.; Jones, R. G.; Mann, M. J.; Soper, Q. F.; Van Abeele, F. R., and Chiang, Ming-Chien: Biosynthesis of Penicillins: I. Biological Precursors for Benzylpenicillin (Penicillin G), J. Biol. Chem. **175**: 751, 1948. Behrens, O. K.; Corse, J.; Jones, R. G.; Kleiderer, E. C.; Soper, Q. F.; Van Abeele, F. R.; Larson, L. M.; Sylvester, J. C.; Haines, W. J., and Carter, H. E., Biosynthesis of Penicillins: II. Utilization of Deuterophenylacetyl-N^{15}-DL-Valine in Penicillin Biosynthesis, ibid. **175**: 765, 1948. Behrens, O. K.; Corse, J.; Huff, D. E.; Jones, R. G.; Soper, Q. F., and Whitehead, C. W., Biosynthesis of Penicillins: III. Preparation and Evaluation of Precursors for New Penicillins, ibid. **175**: 771, 1948. Behrens, O. K.; Corse, J.; Edwards, J. P.; Garrison, L.; Jones, R. G.; Soper, Q. F.; Van Abeele, F. R., and Whitehead, C. W.: Biosynthesis of Penicillins: IV. New Crystalline Biosynthetic Penicillins, ibid. **175**: 793, 1948.

ever, Ford and co-workers[15] prepared gamma-chlorocrotylmercaptomethylpenicillin and observed that it did not cause reactions in laboratory workers sensitized to penicillin G.[16] It was also found that a closely related aliphatic compound, allylthiomethylpenicillin, one of the series described by Behrens and others,[14] was equally well tolerated by persons sensitive to penicillin G. Rose and associates[17] found that this penicillin and also the n-butylmercaptomethylpenicillin were less toxic in mice, rabbits and dogs and that they did not cause allergic reactions in animals sensitized to penicillin G. Thus a group of biosynthetic penicillins was found which could be considered for use in hypersensitive patients; one of them, allylmercaptomethylpenicillin, designated also as penicillin O, has been studied by our group.

Examination of bacteria freshly isolated from patients confirmed the observations of Bliss and Todd[18] according to which the minimal inhibitory concentrations of penicillin O for gram-positive cocci are the same or twice those of penicillin G. In addition to the organisms isolated from patients treated with penicillin O, we have examined thirty-five strains of cocci, using the serial tube-dilution method and Bacillus subtilis as a control organism. The results (table 1) show that the minimal inhibitory concentration in vitro of penicillin O was in 18 instances twice that of, in 14 instances equal to and in 3 instances one-half that of penicillin G.

While the $L.D._0$ for penicillin G in mice on intraperitoneal injection was 125,000 units per kilogram of body weight, that of penicillin O was 300,000 units per kilogram of body weight. The $L.D._0$ of penicillin G and O applied subcutaneously or per os is so high that, owing to the large volumes of material which must be given, the calculations are not reliable. There is, however, a local irritative action of penicillin. When increasing doses were injected subcutaneously to groups of 6 mice, local inflammatory lesions occurred after the injection of 250,000 units of penicillin G per kilogram and of 500,000 units of penicillin O per kilogram. Thus the latter is less toxic and less irritating than the former.

The absorption and excretion curves of penicillin O in 10 adults were essentially the same as those of penicillin G, with statistically insignificant variations. The penicillin O plasma levels determined with the B. subtilis method were 0.95 ± 0.06 units in thirty minutes, 0.57 ± 0.05 units in one hour and 0.13 ± 0.02 units in four hours after the injection of 100,000 units of penicillin O intramuscularly. Untoward effects were not observed.

Five persons who were known to have had shown allergic phenomena after the injection of penicillin G during the last three months were examined with the aid of patch tests, each using 25,000 units of penicillin, G or O, and sterile isotonic sodium chloride solution. Four of them had a positive reaction to penicillin G but no reaction to penicillin O and saline solution, while 1 had a strong reaction to penicillin G and a mild reaction to penicillin O.

It was therefore decided to administer penicillin O to 57 patients who had clinical symptoms of hypersensitivity to penicillin G within a preceding period of not more than 200 days, and who were in need of penicillin treatment.

Twenty of these patients had infections of the upper part of the respiratory tract. They were given penicillin O dust inhalations, 100,000 units every four hours for three days. None of these persons showed allergic phenomena. All recovered without complications.

Twenty-three patients with catarrhal tonsillitis and pharyngitis, from whom beta-hemolytic streptoccocci had been isolated, received penicillin O troches containing 3,000 units, ten per day for three days. None showed sensitivity to penicillin O. The result of the treatment was considered excellent in 15, good in 5 and poor in 3 cases.

Fourteen patients received injections of penicillin O. In order to establish whether penicillin O is better tolerated than penicillin G or whether it also has a desensitizing effect, the patients received injections of penicillin G after the course of penicillin O was finished. Penicillin G was well tolerated after the administration of penicillin O, thus suggesting that this biosynthetic penicillin has a desensitizing effect.

TABLE 1.—*Comparison of the In Vitro Activity of Penicillin G and Penicillin O*

Organism	Units Necessary to Inhibit Growth	
	Penicillin G	Penicillin O
Strep. sanguis 178	0.03	0.06
Strep. sanguis 219	0.03	0.03
Strep. sanguis 491	0.06	0.03
Strep. sanguis 690	0.06	0.06
Strep. sanguis 732	0.06	0.12
Strep. sanguis 865	0.01	0.02
Strep. sanguis 1003	0.25	0.50
Strep. sanguis 1175	0.50	1.00
Strep. sanguis 1226	1.00	2.00
Strep. sanguis 1349	0.25	0.50
Strep. sanguis 1417	1.00	1.00
Hemolytic strep. 123	0.06	0.06
Hemolytic strep. 147	0.01	0.02
Hemolytic strep. 336	1.00	2.00
Hemolytic strep. 410	0.25	0.50
Hemolytic strep. 421	0.50	1.00
Hemolytic strep. 745	0.10	0.20
Hemolytic strep. 798	0.03	0.03
Hemolytic strep. 812	0.125	0.25
Hemolytic strep. 919	0.03	0.03
Hemolytic strep. 930	0.06	0.03
Hemolytic strep. 1005	0.25	0.25
Hemolytic strep. 1137	0.03	0.06
Pneumococcus I, 3	0.01	0.01
Pneumococcus I, 7	0.03	0.06
Pneumococcus I, 893	0.01	0.01
Pneumococcus II, 91	1.00	1.00
Pneumococcus III, 785	5.00	5.00
Pneumococcus IX, 654	2.50	5.00
Pneumococcus XII, 549	0.12	0.12
Pneumococcus XV, 619	0.03	0.03
Staph. aureus 1137	0.25	0.25
Staph. aureus 1179	2.50	5.00
Staph. aureus 2103	0.06	0.03
Staph. aureus 2357	0.03	0.06

To illustrate the course of the treatment, 7 short case histories are given. One patient (case 3) was observed through the courtesy of Dr. I. I. Ritter. Although treatment in this case was not successful, it demonstrated the desensitizing value of penicillin O. Seven additional cases are listed in table 2.

REPORT OF CASES

CASE 1.—A woman aged 27 had bronchitis with bronchopneumonia in the lower lobe of the right lung; her temperature was 103.1 F. She had an urticarial reaction in June 1949 after receiving injections of penicillin G. The patch test was positive with 25,000 units of penicillin G and negative with the same amount of penicillin O. The organism isolated from the blood and from the sputum was a streptococcus of the viridans group, sensitive in vitro to 0.03 units each of penicillin G and penicillin O. The patient was given 100,000 units of penicillin O intramuscularly daily on August 7, 8 and 9. The penicillin O

15. Ford, J. H.; Nelson, H. A.; DeVries, W. H., and Hanson, R.: Gamma-Chlorocrotylmercaptoacetic Acid and Gamma-Chlorocrotylmercaptomethyl Penicillin, J. Am. Chem. Soc. **70**: 3522, 1948.
16. Personal communications to the authors, Feb. 19, 1948.
17. Rose, C. L.; Harris, P. N.; Behrens, O. K., and Chen, K. K.: Pharmacology of Allylthiomethyl- and n-Butylthiomethylpenicillin, J. Lab. & Clin. Med. **34**: 126, 1949.
18. Bliss, E. A., and Todd, H. P.: A Comparison of Eight Antibiotic Agents, in Vivo and in Vitro, J. Bact. **58**: 61, 1949.

UNIVERSITY OF MICHIGAN LIBRARIES

plasma levels after one hour were 1.25, 0.612 and 1.25 units, respectively, on these days. On August 10 there were no clinical symptoms or fever. On August 22 the patient was given 25,000 units of penicillin G intramuscularly. There was no reaction. The patch tests, each with 50,000 units of penicillin, G or O, were negative.

CASE 2.—A woman aged 30 had an acute abscess with an elevation of temperature (102.3 F.) after tooth extraction. The dentist advised penicillin therapy, but the patient had had a serum-sickness-like reaction to penicillin in March 1949. She was given 100,000 units of penicillin O per day intramuscularly on June 10 to 12. There was no fever on June 11, when the one, two and four hour penicillin O plasma levels were 2.5, 0.612 and 0.06 units, respectively. On the third day she was without objective symptoms. On July 18 she was given an injection of 10,000 units of penicillin G and showed no reaction.

CASE 3.—A man aged 65 had subacute bacterial endocarditis. In May 1949 the patient was given penicillin G but had a serious reaction, consisting of papulovesicular exanthem and edema. The organism isolated from the blood stream was a streptococcus of the viridans group, sensitive to 1 unit of penicillin G, 0.5 unit of penicillin O, 100 units of streptomycin, 2 units of aureomycin and 5 units of chloramphenicol. The patient had spiking fever (to 102 F.) and petechiae. He was given 1,200,000 units of penicillin O per day, this amount being necessary to maintain normal temperature with negative blood cultures between June 1 and 27. During this time the blood level for penicillin O was between 0.25 and 1.0 units. The sedimentation rate (Wintrobe, corrected) decreased from 31 to 20 per hour; the red blood cell count increased from 3,300,000 to 4,200,000; the hemoglobin rose from 53 to 78 per cent, and the white blood cell count decreased from 14,800 to 8,900. When penicillin O therapy was stopped, bacteremia reappeared. Now the organism was sensitive to 1 unit of penicillin O and 2 units of penicillin G. Treatment with 1,200,000 units of penicillin O was reinstituted, and the patient was without fever again until July 7, when he was started on a regimen of potassium penicillin O, 300,000 units, and procaine penicillin O, 100,000 units per day. By July 23 the organism's resistance increased to 6.25 units for penicillin O and 12.5 units for penicillin G. On August 2 the patient was put on a regimen of 1,500,000 units of penicillin G for three days; he tolerated this without reaction, but the blood cultures were positive and the fever could not be controlled. Treatment of the subacute bacterial endocarditis was unsuccessful.

CASE 4.—A man aged 76 with syphilitic heart disease received 9,600,000 units of penicillin G between Aug. 10 and 15, 1949. On August 25 an urticarial rash appeared on his entire body and caused considerable itching. On August 26 treatment started with penicillin O, 600,000 units per day intramuscularly. On August 29 he showed no exanthem. Penicillin O therapy was discontinued August 31. The penicillin O plasma level one, two and four hours after injection of 200,000 units was 5.0, 2.5 and 0.612 units, respectively, on August 30 . From September 1 to 6 he again received penicillin G, 600,000 units per day, without reaction.

CASE 5.—A man aged 36 had pneumonitis with right-sided pleuritis. He was treated from Aug. 16 to 29, 1949 with penicillin G. He received a total of 7,200,000 units. On August 29 edema, exanthem and abdominal discomfort developed. The patient was given penicillin O, 300,000 units per day. The temperature was 102.4 F. On September 1 the pleural effusion disappeared, the temperature was 101 F. and treatment with penicillin O was stopped. On September 2 the temperature was 99 F. The patient received 10,000 units of penicillin G intramuscularly on September 6 without any reaction.

CASE 6.—A man aged 29 had subacute bacterial endocarditis. The organism isolated from the blood of the patient was Streptococcus sanguis, sensitive to 0.06 units of both penicillin G and penicillin O. There was a story of hypersensitivity to penicillin

TABLE 2.—*Summary of Data on Treatment with Penicillin O in Seven Additional Cases*

Case	Age and Sex	Diagnosis	Organism * and Sensitivity †	Penicillin G Reaction	Penicillin O Given	Median 1 Hr. Penicillin O Plasma Level †	Result	Penicillin G Reinjected
8	62 M	Bronchitis and bronchopneumonia of right lower lobe	Strep. viridans G = 0.03 O = 0.06	July 30, urticarial type	Aug. 12 to 14, 100,000 U. per day	0.02	Aug. 17 no fever; Aug. 19 no clinical symptoms	Aug. 26, 10,000 U., no reaction
9	45 M	Diabetic gangrene of left foot	Hemolytic strep. G = 0.06 O = 0.06	June 1, rash and edema	June 10 to 12, 300,000 U. per day	0.62	Local chemical treatment; no fever June 12	July 3, 10,000 U., no reaction
10	29 M	Chronic ulcerative colitis	Enterococci G = 0.01 O = 0.02	June 17, maculopapular rash	June 20 to 22, 200,000 U. per day	0.62	None; treatment continued with penicillin G	From June 23,‡ 100,000 U. per day, no reaction
11	37 F	Pneumonia and pleurisy with exudate on right side	Pneumococcus II G = 0.06 O = 0.06	Aug. 10, serum sickness-like	Aug. 10 to 13, 100,000 U. per day	0.31	Aug. 13 no fever; Aug. 16 no clinical symptoms	Aug. 29, 10,000 U., no reaction
12	48 M	Subacute bacterial endocarditis	Strep. viridans G = 0.30 O = 0.30	Sept. 2, urticarial type	Sept. 3 to 20, 1,200,000 U. per day	2.50	Sept. 30, Oct. 10 negative	From Oct. 25,‡ 1,000,000 U., no reaction
13	75 M	Subacute bacterial endocarditis	Strep. viridans G = 0.09 O = 0.09	Nov. 2, rash and edema	Nov. 25 to Dec. 1, 1,500,000 U. per day	2.50	Fever repressed; blood culture negative	From Dec. 2,‡ 1,500,000 U. per day, no reaction
14	28 M	Tonsillitis with abscess	Hemolytic strep. G = 0.01 O = 0.03	Nov. 10, urticarial type	Nov. 10 to 12, 100,000 U. per day	0.31	Fever and abscess diminished	Nov. 13 to 16, 100,000 U. per day, no reaction

* G denotes penicillin G; O, penicillin O.
† In units.
‡ Penicillin reinjections terminated in case 10 on July 30, in case 12 on January 24 and in case 13 on November 3.

CASE 7.—A man aged 43 had pneumonia of the lower lobe of the right lung; Pneumococcus I organisms sensitive to 0.03 units of penicillin G and 0.06 units of penicillin O were isolated. The patient was treated with 100,000 units of penicillin G on December 5 and 6, and a serum-sickness-like reaction developed. On the next day penicillin O, 100,000 units, was substituted. The allergic reaction did not subside within three days. Administration of penicillin O was discontinued, and patch tests were performed, each using 25,000 units of penicillin O or G. There was pronounced reaction to both forms of penicillin. The skin tests were repeated on December 29 and again showed the presence of hypersensitivity to both penicillin G and penicillin O.

On September 15 patch tests were performed, each using 25,000 units of penicillin, G or O. There was a strongly positive reaction to the first form of penicillin and a negative reaction to the second. Hence, the patient was treated with penicillin O and received 1,200,000 units per day from September 20 to 30. The penicillin O blood level varied between 2.5 and 0.612 units during these days. Three blood cultures, taken three days apart, were negative during this period. On October 4 the patch tests were repeated. Two days later there was a slight reaction to penicillin G and none to penicillin O. Because the fever reappeared, the patient was again given 1,200,000 units of penicillin G per day, which was well tolerated.

CONCLUSIONS

Penicillin O given by inhalation, in oral troches and parenterally was used in 57 patients sensitive to penicillin G. None showed untoward reactions. Penicillin O proved as effective in the series of diseases as penicillin G. Thus penicillin O may be useful in patients who are hypersensitive to penicillin G. Reactions previously observed after the administration of penicillin G do not recur after the use of penicillin O in most cases.

TREATMENT OF ASCARIASIS IN CHILDREN

Use of 1-Diethylcarbamyl-4-Methyl Piperazine Dihydrogen Citrate (Hetrazan®)

JAMES N. ETTELDORF, M.D.
and
LLOYD V. CRAWFORD, M.D.
Memphis, Tenn.

We propose herein to consider the use of 1-diethylcarbamyl-4-methyl piperazine dihydrogen citrate (hetrazan®)[1] in the treatment of ascariasis in children. Only casual reference to the report of Ochsner, DeBakey and Dixon,[2] with its complete bibliography, will serve to impress one with the importance of ascariasis and to emphasize that ascaris infections are capable of causing serious complications in the gastrointestinal, respiratory, cardiovascular and reproductive systems. Added importance is placed on these infections when it is realized that ascariasis is the most common of the helminthic diseases. In certain areas of this country, as well as in other countries, ascariasis with its complications ranks high as one of the major medical problems in children.

Numerous anthelminthic drugs have been advocated in the past for the treatment of ascariasis. The most widely used agent at the present time is hexylresorcinol. This drug is not an ideal agent for children for the following reasons: (*a*) it is irritating to the mucous membranes and should be swallowed in capsular form; (*b*) its effective use requires that the gastrointestinal tract be free of food in order that the drug not be inactivated (for this reason the child must fast for twelve hours before and for at least four hours after administration of the drug), and (*c*) a laxative is required to expel the dead worms, which must be removed from the gastrointestinal tract to prevent the absorption of toxic by-products. According to Ochsner and associates[2] presence of the dead worms may also result in the production of a complicating intestinal obstruction.

Another agent, chenopodium oil, although effective in the treatment of ascariasis, is highly toxic, especially in children, to the liver, kidneys and nervous system (Sollmann,[3] pages 188-189). Santonin, though widely used for many years, is relatively ineffective and is endowed with the danger of producing visual disturbances and other phenomena of severe intoxication to the gastrointestinal, urinary and central nervous systems.[4]

From the Division of Pediatrics, University of Tennessee School of Medicine, and the Department of Pediatrics, John Gaston Hospital.

1. Supplied by Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

2. Ochsner, A.; DeBakey, E. G., and Dixon, J. L.: Complications of Ascariasis Requiring Surgical Treatment, Am. J. Dis. Child. **77**: 389 (March) 1949.

3. Sollmann, T. H.: A Manual of Pharmacology and Its Applications to Therapeutics and Toxicology, ed. 7, Philadelphia, W. B. Saunders Company, 1948.

4. Sollmann,[3] pp. 192-193.

Hewitt and co-workers[5] have studied the action of 1-diethylcarbamyl-4-methyl piperazine hydrochloride in the treatment of filariasis; they[6] also discovered that doses of 25 mg. per pound (0.5 Kg.) were effective against ascariasis in dogs in 100 per cent of the cases. Recently Oliver-Gonzalez and co-workers[7] treated 6 adult patients with ascariasis with this compound, using only 2 mg. per kilogram three times for a single day. They were able to remove all worms in 50 per cent of the cases and demonstrated ova count reductions of 83.4 to 99.5 per cent in the remaining cases.

Harned and associates[8] have conducted extensive pharmacologic and toxicologic studies with this drug utilizing seven species of laboratory animals. They concluded that the drug has a low toxicity and few side reactions. The intraperitoneal lethal dose in mice was 660 mg. per kilogram and in rats 1,380 mg. per kilogram. They observed that 25 mg. per kilogram given three times daily to dogs for a period of two months did not produce toxicity. The compound was nonirritating and rapidly excreted by the kidneys. This dose was observed to be many times greater than that required to effectively remove the ascarids from dogs. It is because of the foregoing observations that we undertook to evaluate the usefulness of this drug in the treatment of ascariasis in children from the standpoint of its therapeutic effectiveness, margin of safety and optimal dosage.

METHODS

In order to be assured that the drug was administered properly and to watch for toxic manifestations, these patients were hospitalized whenever possible. The diagnosis was established by obtaining from the patient a history of having passed round worms and by positive evidence of ascaris ova in the stools. A complete physical examination, complete blood cell counts and urinalysis were made on admission to the hospital. During the periods of therapy the patients were observed daily and examined for toxic manifestations. Complete blood cell counts and urinalyses were performed every two days during the period of observation.

The dosage (table 1) at the beginning of the study was arbitrarily set between 3 and 5 mg. per kilogram of body weight three times a day for as long as eleven days. This dose was altered by increments of 1 mg. per kilogram three times a day for the first few patients until an effective and apparently nontoxic dose was ascertained. A dose of 6 mg. per kilogram three times a day was observed to fulfil these criteria. All worms and stools passed during the period of therapy were examined; the results are recorded in table 2. Treatment was continued until ova were not observed in the feces on repeated examinations. The stools were examined by the zinc sulfate concentration method. After the course of treatment was completed the patients

5. (*a*) Santiago-Stevenson, D.; Oliver-Gonzalez, J., and Hewitt, R. I.: Treatment of Filariasis Bancrofti with 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride ("Hetrazan"), J. A. M. A. **135**: 708 (Nov. 15) 1947. (*b*) Hewitt, R. I.; Kushner, S.; Stewart, H. W.; White, E.; Wallace, W. S., and SubbaRow, Y.: Effect of 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride Against Naturally Acquired Filarial Infections in Cotton Rats and Dogs, J. Lab. & Clin. Med. **32**: 1314 (Nov.) 1947.

6. Hewitt, R.; Wallace, W.; White, E., and SubbaRow, Y.: The Treatment of Ascariasis in Dogs with 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride, J. Parasitol. **34**: 237 (June) 1948.

7. Oliver-Gonzalez, J.; Santiago-Stevenson, D., and Hewitt, R. I.: Treatment of 6 Cases of Ascariasis in Man with 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride, South. M. J. **42**: 65 (Jan.) 1949.

8. Harned, B. K.; Cunningham, R. W.; Halliday, S.; Vessey, R. E.; Yuda, N. N.; Clark, M. C., and SubbaRow, Y.: Some Toxicological and Pharmacological Properties of 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride, Hetrazan, Ann. New York Acad. Sc. **50**: 141 (May 25) 1948. Harned, B. K.; Cunningham, R. W.; Halliday, S.; Vessey, R. E.; Yuda, N. N.; Clark, M.; Hine, C. H.; Cosgrove, R., and SubbaRow, Y.: Studies on the Chemotherapy of Filariasis: VI. Some Pharmacodynamic Properties of 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride, Hetrazan, J. Lab. & Clin. Med. **33**: 216 (Feb.) 1948.

UNIVERSITY OF MICHIGAN LIBRARIES

were discharged from the hospital and followed in the outpatient clinic at two and four week intervals. At follow-up a history was repeated, physical examination was done, blood cell counts made and the stools examined for the presence of ova. Purgatives were not administered to any of these patients.

RESULTS

The summary of the dosages used and therapeutic results, as well as any reactions which occurred during these studies, can be obtained by reference to tables 1 and 2. A total of 15 patients with proved ascariasis, 3 of whom were not hospitalized (cases 2, 3 and 4), and 3 normal children were studied.

In case 1 the initial dose was 4 mg. per kilogram of body weight three times a day. This dose resulted in the patient's passing only one adult ascarid in the stool. The dose was then increased after three days to 5 mg. per kilogram and continued for eight additional days, whereupon three ascarids were passed and the stools became ova free. An examination of the stool two weeks later revealed the presence of ova. The baby was severely ill with histoplasmosis and succumbed before we could institute additional therapy.

Patients 2, 3 and 4 (children of one family) received 5 mg. per kilogram three times a day for three days, and then the dosage was reduced to 3 mg. per kilogram three times a day for five additional days. These patients passed sixteen to eighteen round worms during the first two days of treatment. However, the stools in cases 3 and 4 continued to reveal the presence of ova throughout our observations. A check into the home revealed that the children in all probability were reinfesting themselves because of the prevailing filthy conditions. It was impossible to get these patients hospitalized in order to repeat a better controlled trial of therapy. In spite of the unsanitary living conditions it can be seen by reference to table 2 that these patients passed numerous ascarids and that patient 1 was apparently free of ova and parasites at the end of our observations.

TABLE 1.—*Summary of Dosage and Toxic Manifestations For Hetrazan® in 15 Patients with Ascariasis and in 3 Normal Children*

Case	Weight (Kg.)	Dose of Hetrazan * Mg./Kg. t.i.d.	Duration (Days)	Total (Mg.)	Toxicity
1	7	4 5	3 8	1,092	Leukopenia due to histoplasmosis
2	20	5 3	3 5	1,800	Nausea, anorexia
3	25	5 3	3 5	2,270	None
4	14	5 3	3 5	1,230	None
5	10	6	8	1,440	None
6	19	6	8	2,730	None
7	12.5	6	7	1,800	None
8	10.5	6	7	1,500	None
9	10.5	6	7	1,500	None
10	14	6	7	2,016	None
11	12.5	6	8	1,800	None
12	15	6	9	2,700	None
13	12	6	8	1,680	None
14	10	6	9	1,620	None
15	12	6	8	1,800	None
16†	10	10	7	2,100	None
17†	11	10	7	2,310	None
18†	11.5	10	7	2,415	None

* Registered trade mark.
† Normal children.

The remaining 11 patients received an initial and maintenance dose of 6 mg. per kilogram three times a day for seven to eight days. It was observed that the adult worms were passed during the first three or four days of therapy, the greatest number being passed on the second day. All stools of this group, with the exception of case 10, became ova free after five to eight days and remained ova free for one month following therapy. Patient 10 passed three worms on the second day of therapy but continued to pass ova in the stools throughout the period of hospital observation and for two weeks after being discharged. At the time of passage the worms in all instances were not dead but nearly so and responded sluggishly to stimuli.

TABLE 2.—*Summary of the Therapeutic Results in 15 Cases of Ascariasis Treated with Hetrazan®*

Case	Parasites Passed No.	Parasites Passed Days After Treatment	First Ova-Free Stools (Day of Treatment)	Stool Exam. (Ova) After Treatment 2 Wk.	Stool Exam. (Ova) After Treatment 1 Mo.
1	1 1 2	2 5 6	9	Present	Present
2	12 6	1 2	3		
3	10 6 2 1	1 2 3 5	Remained pos. throughout treatment		
4	11 6 1	1 2 3	Remained pos. throughout treatment		
5	2	2	4	Absent	Absent
6	1 2	2 3	5	Absent	Absent
7	1 4 1 1	1 2 3 5	6	Absent	Absent
8	2 3	2 3	5	Absent	Absent
9	1 2	2 3	5	Absent	Absent
10	3	2	Remained pos. throughout treatment	Present	
11	3 1 1	1 2 3	4	Absent	Absent
12	3 2	1 2	2	Absent	Absent
13	1 3 2	1 2 3	3	Absent	Absent
14	2 3	2 3	6	Absent	Absent
15	4 1	1 2	5	Absent	Absent

The toxic reactions (table 1) in the patients with ascariasis as well as in normal children (16, 17 and 18) receiving 10 mg. of the drug per kilogram of body weight three times a day for seven days were insignificant and not unlike those reported by Harned and others [8] in experimental animals. In no instance was there evidence of the headache, lumbar ache or skin rash reported by Santiago-Stevenson and co-workers,[8a] and only in case 2 was there anorexia, nausea and vomiting. Repeated examination of the blood of these patients reflected no abnormality in either the erythrocytes or leukocytes and repeated urinalyses revealed no abnormality. There were no toxic manifestations in these cases which could be attributed to the absorption of toxic by-products resulting from the disintegration of worms. Beyond the limits of our experience with cases 2, 3 and 4 we are not prepared to state whether or not, after the use of this drug, absorption of toxic by-products will result from extremely heavy infections.

COMMENT

It appears that we have in 1-diethylcarbamyl-4-methyl piperazine dihydrogen citrate an ascaricidal drug which approaches the ideal, especially with regard to

children, more nearly than any other agent. The low toxicity with 6 or 10 mg. per kilogram of body weight given three times a day for eight days and a uniform good effect with doses of 6 mg. per kilogram three times a day for seven to eight days duration give the compound a high therapeutic index. A desirable feature in the use of this drug is that it can be administered orally without difficulty and without local effects. Another advantage is that there need be no period of starvation antecedent to its administration; neither is it necessary to administer a laxative in conjunction with it. The fact that the parasites are passed in a near dead condition and practically nonmotile may be interpreted as a feature in favor of this drug, since the absorption of toxic by-products derived from dead and disintegrated parasites would be less likely. Also, the possibility of migration into other hollow viscera would conceivably be diminished.

A personal communication from Hewitt and Mazzotti [9] reveals that the ascaricidal effect of the 1-diethylcarbamyl-4-methyl piperazine dihydrogen citrate apparently varies in different sections of the world. In the Philippines not a single failure was reported with doses of only 2 or 3 mg. per kilogram four times a day for one day. On the other hand, investigators in the Belgian Congo claim that no ascarids were expelled when treatment with 2 mg. per kilogram two or three times a day was continued for one or two weeks. Hewitt and Mazzotti [9] conducted a study in Mexico with 47 boys from 6 to 19 years of age, given single doses of the drug varying from 3 to 13 mg. per kilogram followed in ninety minutes by a saline purge. Fifteen passed no worms whatsoever during a one week follow-up period. The remainder passed one to seven worms, but the stools remained ova-positive. Another group of 48 boys within the same age range was given multiple doses without a purge; one single dose was given on each of two successive days, followed by one day without therapy, then two daily doses were given for the next two days. The total dosage ranged from 18 to 42 mg. per kilogram. Twenty-two of this group passed no worms whatsoever, and the remainder passed from one to seven worms. There was no relationship in either group between dosage and the number of worms expelled. They observed that chenopodium oil followed by a purge removed approximately twice as many worms as did the two regimens of hetrazan® therapy.

The results of our studies demonstrate that frequent dosage over a period of one week or longer is the method of choice. We also believe that a dose of 10 mg. per kilogram three times a day might be indicated if 6 mg. per kilogram three times a day proves inadequate against more resistant parasites or in the case of heavy infections.

CONCLUSION

Studies to determine the value of 1-diethylcarbamyl-4-methyl piperazine dihydrogen citrate (hetrazan®) in the treatment of ascariasis in children are described. In our hands it was observed that 6 mg. per kilogram three times a day for at least one week will effectively cause the removal of ascarids without the use of purgatives or resorting to fasting. The drug was observed to be nontoxic in dosages ranging as high as 10 mg. per kilogram three times a day for one week.

9. Hewitt, R., and Mazzotti, L.: Personal communication to the authors.

NUTRITIONAL MELALGIA, A DEFICIENCY VASCULAR DISEASE

SIDNEY VERNON, M.D.
Willimantic, Conn.

A syndrome of painful burning feet observed among Japanese prisoners of war seemed to have been inadequately reported and referred to as dry beriberi. It was believed the clinical picture with regard to appearance and late effects justified the label nutritional causalgia. Search of the literature revealed that Glusman [1] had reviewed the syndrome proposing the name of nutritional melalgia. Correspondence with former prisoners of war suffering from residual symptoms showed that the physicians they encountered gave varying evaluations of their complaints, usually being unimpressed. The attitude of the physicians was different from that of those who had seen the condition at first hand. It seems appropriate to report the condition in order to disseminate information for the benefit of a misunderstood group of patients. It is also desirable to present this syndrome for the sake of emphasizing a nutritional factor in peripheral vascular disease.

I encountered the syndrome of painful burning feet at Cabanatuan (Philippine Islands) prisoner of war camp in November 1942. This involved many men (up to 35 per cent) for whom so little could be done that they were not admitted to the hospital area and continued to live among personnel on duty status who were eligible for work details. Many men had symptoms mild enough to be borne without any outward sign; others showed a hobbling, measured, shuffling gait (to and from the latrine) with a visage of agony (resentful, patient or piteous, depending on the man).

Those who were mildly affected complained if someone walked heavily or jumped nearby on the wooden walkway in the barracks, since the vibration would send shooting pains up the sufferer's legs. The burning of the feet he had already learned to take for granted, to tolerate until the food would improve. Usually other deficiency signs, such as glossitis, cheilosis and scrotal dermatitis, were present.

As the condition increased in severity shooting pains could be felt without the stimulus of vibration. Even after such an attack subsided a dull ache in the legs remained. The pains and the ache were more severe at night and made sleep practically impossible. Gentle firm compression of the feet seemed to relieve the ache momentarily. One pair of patients compressed and stroked each other's feet simultaneously to obtain mutual relief. Some gained momentary relief by immersing the feet in cold water, but the effect of withdrawal was increased pain. Quinine was sought for relief because of its analgesic effect.

The level to which lower limb symptoms were felt depended on the severity of the disease; and in some cases the pain extended beyond the midthigh. In the severest cases there was burning and some numbness in the hands also.

Muscle wasting, paralysis or areflexia was not part of the syndrome. Pain was the outstanding symptom. Pinkness and at times sweating were frequent signs. The condition was referred to at the time as dry beriberi. Yet it was different from the severe polyneuritic type that showed wasting and paralysis of all four limbs without sensory symptoms. Because of the diagnosis of

1. Glusman, M.: The Syndrome of "Burning Feet" (Nutritional Melalgia) As a Manifestation of Nutritional Deficiency, Am. J. Med. 3: 211-223, 1947.

UNIVERSITY OF MICHIGAN LIBRARIES

beriberi, available supplies of thiamine hydrochloride were used for the treatment of such patients. Convincing beneficial effects were not noted. Many patients complained of an aggravation of pain after receiving the vitamin B_1 therapy. Treatment by all available means did not result in any appreciable effect.

The incidence of the condition was at its height in December 1942, when Red Cross parcels for Christmas arrived. Only the continued use of adequate amounts of varied articles of diet produced significant improvement in this widespread disease. Hence, the opinion arose that the condition was not beriberi but was due to lack of some unknown food factor that is present in an adequate, varied diet.

In spite of apparent cure these patients were left with a susceptibility to recurrence of the syndrome in milder form as a result of exposure or exertion. Several weeks after liberation in 1945, after a period of maximum ingestion of good food, men were complaining of susceptibility to recurrence. Former patients who met at annual reunions four years afterward still complained of periodic recurrences and especially that physicians "did not understand" their condition, apparently believing that psychic trauma of life as a prisoner of war or some other neurogenic mechanism was involved in the genesis of symptoms.

One former prisoner of war states, "My ward doctor thought I was putting on until I was seen by the eye, ear, nose and throat specialist who was with us in Cabanatuan. He lectured to the staff on diseases of prisoners of war, and then the ward doctor really went after my case." Another writes, "I have regained my former weight but I can't keep a job. I am driving a taxi, but the pains in my feet make me lay off quite a bit. But the doctors here see nothing wrong with me." Another in the Air Force states, "In cold weather I get burning and tingling in my feet. When I go on sick call, they think I'm gold-bricking. I'm getting along as well as I can."

HISTORY OF THE PAINFUL FEET SYNDROME

During the British-Burmese war, 1823-1826, native Indian troops serving under the British were disabled by this deficiency disease, and it was reported by Grierson [2] in 1826 and later by others.[3] Another report in 1835, by Malcolmson,[4] was in response to a prize offered by the Madras Presidency for the best paper on this subject. Waring [5] in 1860 again described this condition in India, and Collas [6] is credited with the use of the term causalgia (*causalgésie*) in 1861 in a review in a French medical journal published in 1911.

In 1881 [7] the term ignipedites was used to describe the condition by Indian (Asiatic) physicians. In 1904 Gerrard [8] described burning feet among Tamil laborers of Malaya and used the label erythromelalgia tropica, showing the resemblance of the pain and burning feet to that in erythromelalgia (named by S. Weir Mitchell in 1878). A revived interest in this condition, to judge from the literature, was apparent about 1927, when it was reported by Labernadie [9] and in the next two years by others.

The first report on such a condition in a recent conflict stems from the Spanish Civil War years of 1936 to 1939. Peraita [10] described the condition, referring to it as the paresthetic-causalgic syndrome which occurred in Madrid, in association with malnutrition, in 1937 and 1938. At that time it was recognized that the deficiency was due to lack of some factor present in yeast. Gopalan [11] in a report from India in 1946 indicated striking therapeutic results from the use of pantothenic acid. The recurrence of these nutritional states in India may be associated with the fact that the Hindu avoids eating meat under all conditions, the restricted diet making him prone to deficiency development.

Among prisoners in Japanese prisoner of war camps in Osaka there were several who had gangrene which Japanese physicians called "spontaneous." This developed in the toes and the distal portions of the feet in a small number of patients with burning feet and required amputation of the distal portion of the involved extremity. The habit of obtaining relief by chilling of the feet must have had something to do with bringing about the condition. Gangrene did not develop in patients with burning feet in the tropical areas. Although perspiration is described as characteristic of the syndrome in tropical areas, this was not noted in the colder zones. Chilling gave some relief, but the application of warmth or heat produced increased pain. Patients were urged to avoid the use of chilling for pain relief, but many of them compromised by sleeping with their feet uncovered. This is a striking resemblance to the picture I have seen at night while going through a surgical ward in a city hospital where the elderly men, usually arteriosclerotic, chose to sleep with their feet exposed to the air. This observation points to the probability of vascular disease as the basis for this syndrome. There may be a factor of sympathetic nerve imbalance connected with the vasospastic element.

COMMENT

The distinction between the syndrome of painful, burning feet and true dry beriberi deserves emphasis. Hibbs,[12] stated that beriberi with paralysis occurred in about 2 per cent of the personnel in Cabanatuan and that the painful burning feet occurred in 75 per cent. It must be noted that painful burning feet has been described only when it occurred in epidemic proportions in connection with privation and starvation from the British-Burmese war and other campaigns in that region to the Spanish Civil War and the present war involving prisoners of the Japanese. What may occur in epidemic form during war may occur sporadically among patients seen in time of peace. The understanding gained by the concept that the epidemics as found in war experience are due to malnutrition is of use in interpretation of the sporadic cases found in civil life, which also could be due to dietary deficiency.

That the syndrome was not true beriberi was suspected when there was no response to administration of thiamine hydrochloride. The fact that it could have

2. Grierson, J.: On the Burning in the Feet of Natives, Tr. M. & Phys. Soc. Calcutta **2**: 275-280, 1826.
3. Playfair, G.: Letter to the Editor on Burning Feet, Tr. M. & Phys. Soc. Calcutta **2**: 280, 1826. Burnard, R. N.: Sketch of the Medical Topography of Arracan, and Observations of Diseases, ibid. **3**: 25-85, 1827. McKenna: Diseases of Native Troops in the Straits of Malacca, Madras Quart. M. J. **1**: 431-435, 1839.
4. Malcolmson, J. G.: Observations on Some Forms of Rheumatism Prevailing in India, par. 32-55, Madras, Vepery Mission Press, 1835.
5. Waring, E. J.: Notes on the Affection Called "Burning of the Feet," Madras Quart. J. M. Sc. **1**: 300-306, 1860.
6. Collas, A. M. A.: Étude sur la causalgésie (Burning of the Feet), abstracted in Ann. hyg. et méd. col. **14**: 828, 1911.
7. Ram, S.: Ignipedites, Indian M. Gaz. (no. 8) **16**: 7, 1881.
8. Gerrard, P. N.: Burning Feet or Erythromelalgia Tropica, Dublin J. M. Sc. **118**: 192-195, 1904.
9. Labernadie, V.: Apropos d'un cas de "Burning of the Feet," Far East. A. Trop. Med. Tr. Seventh Cong. (1927) **1**: 13-16, 1928.
10. Peraita, M.: Neuropathien Infolge Mangelhafter Ernährung, Arch. f. Psychiat. **114**: 611-648, 1942.
11. Gopalan, C.: The "Burning Feet" Syndrome, Indian M. Gaz. **81**: 22-25, 1946.
12. Hibbs, R. E.: Beri-Beri in Japanese Prison Camp, Ann. Int. Med. **25**: 270-282, 1946.

been deficiency of some dietary factor as yet unknown or undiscovered was emphasized when available medicaments did not cause any favorable results and when the condition disappeared only after the general diet improved. However, the work of Gopalan indicating that calcium pantothenate yields significant therapeutic results seems to establish a relationship of pantothenic acid to the syndrome of burning feet.

Kinoshita, pathologist at Osaka University, performed necropsies on Japanese soldiers who had had "burning feet" in by-passed isolated islands but who managed to get back to Japan and later died of intercurrent infection. There was definite thickening of blood vessel walls and narrowing or obliteration of the lumen of the small arterioles of the feet and legs. The peripheral nerves and spinal cord were normal. Harrison[13] observed among his prisoners of war patients with this syndrome an elevation of diastolic blood pressure attributed to blood vessel spasm. He showed that momentary relief of pain followed the administration of amyl nitrite in an isolated case, and twenty-four hour relief resulted after a massive dose of nicotinic acid was given to a patient who became "lobster red from head to toes." The assumption is that drug-induced vasodilatation relieved the spasm and the pain. Increased diastolic pressure associated with painful foot syndrome suggests a vasospastic element involving vasomotor abnormality.

A theoretic consideration when vasospasm is concerned is the adrenocortical factor. Although environmental conditions existed that would stimulate an alarm reaction and the development of an adaptation syndrome, it is significant that improvement occurred when better food was eaten without any other change in the environment. One is entitled to speculate on the possibility of an alteration in steroid chemistry by the stress of starvation plus other privations.

DEFICIENCY DISEASE IN DIAGNOSIS

With the accumulated observations of time many obscure conditions are finally proved to be deficiency diseases. Wernicke's encephalopathy, described in 1881 and characterized by ataxia, ophthalmoplegia and mental confusion, was proved by observations of de Wardener and Lennox[14] in a Singapore hospital for prisoners of war to be due to thiamine deficiency and was therefore referred to as cerebral beriberi. Their cases were characterized by loss of appetite, vomiting, eye changes (diplopia and nystagmus) and mental changes (confusion, loss of memory and anxiety) and responded consistently to thiamine hydrochloride therapy.

Deficiency states in the treatment of disease may not be suspected until refractoriness arouses suspicion. Nocturnal frequency of micturition without urinary residuum or prostatic enlargement may be a symptom of deficiency of the antidiuretic hormone which is normally elaborated by the pituitary gland when there is sufficient thiamine hydrochloride in the tissues. Adhesive tape dermatitis may be a symptom of riboflavin deficiency reasonably confirmed by the presence of labial commissure erosion or rhagades. When any stigma of deficiency disease is present, it must be assumed that multiple deficiencies exist and that others not evidenced by symptoms are subclinical and may be evoked by some stress which has no effect on the fully nourished person. Treatment with vitamin food factors should be therefore of the "shotgun" rather than of the specific variety; in the treatment of any vitamin B deficiency it is wiser to prescribe vitamin B complex.

A resistant pyodermia may be relieved by adding an antidermatitis factor such as nicotinic acid to treatment. (The "chick antidermatitis factor" is pantothenic acid.) Gastrointestinal surgery may be accompanied with the insidious development of deficiency states; these should be suspected as an aftermath of gastroenterostomy, ileostomy, shortcircuiting operations involving the small or large intestines and intestinal resection. Jejunoileac insufficiency[15] has been described in this connection. Postoperative adynamic ileus may be an indication of a subclinical deficiency state, and the recent emphasis on the use of thiamine hydrochloride to counteract this symptom shows acceptance of such an opinion.

Breast nodules in the adult male which were observed among 30 per cent of the prisoners of war at Cabanatuan may be a result of malnutrition. Since it has been shown that the liver fails to destroy excess estrogenic hormone elaborated in the body in the absence of adequate supplies of thiamine, the condition may be found in malnutrition associated with hepatic disease.

Convulsions in the nursing infant in the Philippines are usually treated as infantile beriberi, which is effectively controlled by vitamin B extract. It may be useful to consider such a factor in the differential diagnosis of infantile convulsions anywhere.

Painless enlargement of the parotid gland was observed among prisoners of war and was regarded as a deficiency symptom, possibly of vitamin A. This may be significant in explaining Mikulicz' disease.[16]

PANTOTHENIC ACID THERAPY

Woolley[17] noted that after three weeks on a diet deficient in pantothenic acid his mice became hyperirritable and that a few days later they seemed to be seized by periodic spasms. At intervals violent and rapid movement would take place, and the animals would squeal occasionally as if in pain. Follis and Wintrobe[18] described pantothenic acid deficiency in pigs as manifested by a sudden lifting of one of the limbs from the ground as though it were painful. The conditions in prisoner of war camps which produced large numbers of cases of a similar syndrome at the same time can be likened to a mass experiment. Unfortunately, the facilities for control observation are not present when such deprivation prevails. Since Gopalan has reported striking results in patients who have the burning feet syndrome after calcium pantothenate therapy, former prisoners with recurring bouts of this syndrome are entitled to an adequate clinical trial with this substance. The correlation of observations on these human subjects suggests that the painful feet syndrome is a deficiency state different from beriberi, or thiamine deficiency.

The significance of nutrition in this syndrome is given appropriate emphasis by the name nutritional melalgia. S. Weir Mitchell used the term causalgia to mean burning pain, but later usage has caused it to be applied to the syndrome involving an extremity in which nerve injury has occurred. Melalgia as applied

13. Harrison, G. F.: Nutritional Deficiency, Painful Feet, High Blood Pressure in Hong-Kong, Lancet **1**: 961-964, 1946.
14. de Wardener, H. E., and Lennox, B.: Cerebral Beri-Beri (Wernicke's Encephalopathy): Review of 52 Cases in Singapore Prison-of-War Hospital, Lancet **1**: 11-17, 1947.
15. Posey, E. L., Jr., and Bargen, J. A.: Jejeuno-Ileac Insufficiency: Its Relation to Sprue Syndrome, S. Clin. North America **28**: 903-924, 1948.
16. Da Costa, J. C.: Modern Surgery, General and Operative, ed. 9, Philadelphia, W. B. Saunders Company, 1925, p. 905.
17. Woolley, D. W.: Relationship of Pantothenic Acid and Inositol to Alopecia in Mice, Proc. Soc. Exper. Biol. & Med. **46**: 565-569, 1941.
18. Follis, R. H., Jr., and Wintrobe, M. M.: A Comparison of the Effects of Pyridoxine and Pantothenic Acid Deficiencies on the Nervous Tissues of Swine, J. Exper. Med. **81**: 539-552, 1945.

UNIVERSITY OF MICHIGAN LIBRARIES

herein means burning and pain in an extremity. Sympathetic block by procaine hydrochloride or surgery may be considered, but its failure to be dependably effective in sequelae of trench foot augurs no optimism for its use in this condition.

SUMMARY

Nutritional melalgia, a syndrome of painful, burning feet, is presented as a deficiency disease revealing neurovascular symptoms with the predominant pathologic conditions in the blood vessels. It may represent a pantothenic acid deficiency. Former prisoners of war who still have this syndrome deserve a full clinical trial with this factor, even though the tissue changes that accompany long-standing symptoms may be irreversible. Treatment with calcium pantothenate may be worthy of trial when "burning feet" accompanies any peripheral vascular disease. For fullest therapeutic effect pyridoxine and other vitamin B factors may be added.

ANAPHYLACTOID REACTION TO SULFOBROMOPHTHALEIN SODIUM

JAMES L. A. ROTH, M.D.
Philadelphia

Sulfobromophthalein sodium has come into widespread use as one of the most valuable agents in the detection of hepatic insufficiency. It is generally considered to be of low toxicity when given intravenously. Rosenthal and White [1] originally investigated its toxicity in dogs and found that death occurred in 50 per cent of the animals when an injection of more than 100 mg. per kilogram of body weight was given. Death occurred either at once with a generalized convulsion or within two hours after chills and profound weakness. In 1 dog the injection of 50 mg. per kilogram was fatal within four hours. Gross lesions were not observed at autopsy, and microscopic studies revealed only diffuse enteritis.

Untoward reactions in the clinical use of sulfobromophthalein sodium have been so rare that none have been reported in the medical literature until recently.[2] These reactions may be classified as either toxic or allergic. Most observers [3] who have had considerable experience in the use of this dye as a test of liver function have noted occasionally nausea and vomiting, dizziness, syncope, venospasm and delayed pyrogenic reactions six to twelve hours after the injection and lasting one to two days. These toxic reactions have been largely attributed to impurities of the drug or have been associated with a rapid rate of injection. Mild allergic reactions with urticaria or asthma have been observed on rare occasions, but recently Chambers and Moister [2] reported a severe anaphylactic reaction with asthmatic breathing, decided cyanosis, unconsciousness and a three minute period of apnea followed by a generalized clonic convulsion. The patient recovered. This profound reaction occurred in a patient known to have bronchial asthma and in whom skin tests showed multiple sensitivities to food, dust and animal furs. The authors acknowledged that the reaction may not have been due entirely to the dye. The measures used to combat the reaction may have accounted for some of the events that transpired (intravenous administration of 1 cc. of epinephrine hydrochloride [1:1,000], 0.25 Gm. of aminophylline and 30 Gm. of sodium succinate). Serious reactions and even deaths have been reported [4] following the intravenous administration of epinephrine or aminophylline. There seems little doubt, however, that the reaction described in the following case report is attributable to the intravenous injection of sulfobromophthalein sodium.

REPORT OF CASE

History.—W. M., a man aged 38 years, a shipper, was admitted to the medical wards of the Hospital of the University of Pennsylvania Nov. 3, 1948 with the chief complaint of pain in the left side of the chest. He had been well until six days previous to admission, when he contracted a cold with nonproductive cough, fever and pain in the left lower part of the chest, aggravated by breathing and coughing. Because of the persistence of these symptoms, on Nov. 1, 1948 he consulted his local physician, who prescribed sulfadiazine and oral penicillin and strapped his chest with adhesive tape. The patient did not improve with this therapy and was admitted to the hospital. Physical examination was otherwise noncontributory. Past medical history revealed an episode of serum sickness with generalized massive urticaria following the administration of tetanus antiserum after an injury seventeen years previously. There was no other history of allergic manifestations. However, one of his sisters had had allergic rhinitis for many years. During hospitalization in 1947 for treatment of a leg burn it was discovered that the patient had diabetes mellitus. He had not followed a diet closely but had taken 15 units of protamine zinc insulin daily.

Physical Examination.—A moderately obese white man was flushed and perspiring but not in acute distress. The radial pulse was regular at a rate of 124; the oral temperature was 102 F.; the respiratory rate was 32. The systolic blood pressure was 160, diastolic 100. The mucous membranes of the nose and pharynx were slightly injected. There were crackling inspiratory rales heard over the lower third of the right lung base posteriorly. The lower left half of the chest posteriorly was dull to percussion with decreased breath sounds and tactile fremitus; crackling inspiratory rales were heard over this area. The heart was not enlarged to percussion, and murmurs were not heard. A firm, nontender liver edge was felt 3 cm. below the right costal margin at the anterior axillary line. Physical examination otherwise revealed essentially normal conditions.

Laboratory Data.—The urine was normal except for an orange reduction of Benedict's qualitative solution. The hemoglobin was 87 per cent (photoelectric), the red blood cell count 4,200,000 and the white blood cell count 18,200 with 81 per cent neutrophils, 4 per cent monocytes and 15 per cent lymphocytes. The fasting blood sugar level was 280 mg. and the blood urea nitrogen 12 mg., per hundred cubic centimeters; the carbon dioxide content was 55 volumes per cent. The prothrombin time was 45 per cent of normal control, the total serum bilirubin 0.40 mg. per hundred cubic centimeters and the cephalin and thymol flocculation tests negative. The serologic reactions to the Kolmer and Kline tests were negative. Two cultures of the sputum grew alpha streptococci, nonhemolytic streptococci and neisseria.

Roentgen examination of the chest revealed a large pleural effusion on the left and underlying pneumonic infiltration in the lower lobe of the left lung. Thoracentesis on the third hospital day yielded 30 cc. of thick, greenish purulent material, cultures from which grew alpha streptococci and nonhemolytic streptococci. The former organism was moderately sensitive to penicillin, the latter was resistant to both penicillin and streptomycin.

Formerly from the Medical Clinic of the Hospital of the University of Pennsylvania; at present with Gastrointestinal Research Laboratories, Graduate Hospital of the University of Pennsylvania.

1. Rosenthal, S. M., and White, E. C.: Clinical Application of the Bromsulphalein Test for Hepatic Function, J. A. M. A. **84**: 1112 (April 11) 1925.

2. Chambers, W. N., and Moister, F. C.: Bromsulphalein Reaction, Am. J. Med. **5**: 308, 1948.

3. Capps, R. B.: Personal communication to the author. Ingelfinger, F. J.: ibid. Neefe, J. R.: ibid., November 1948. Machella, T. E.: ibid., November 1948.

4. (a) Sterling, A.: Dangers Attending the Use of Ephinephrine in Bronchial Asthma, M. Clin. North America **24**: 1851, 1940. (b) Brevnick, E.; Woodard, W. K., and Sageman, C. B.: Fatal Reactions to Intravenous Administration of Aminophylline, J. A. M. A. **136**: 197 (Feb. 7) 1948.

Treatment.—The patient was given 300,000 units of crystalline procaine penicillin G intramuscularly every twelve hours, and 100,000 units of aqueous sodium penicillin G into the pleural cavity after each aspiration and lavage. Because the clinical response to such therapy was unsatisfactory after six days, treatment with a combination of sulfadiazine and sulfamerazine was begun orally. Within eight hours after administration of the sulfonamide drugs a widespread urticarial rash appeared all over the body. The sulfonamide therapy was discontinued; epinephrine hydrochloride (0.3 cc. in 1:1,000 dilution) was given intramuscularly and tripelennamine hydrochloride (pyribenzamine hydrochloride®) (50 mg.) orally every four hours, with complete disappearance of the rash after an eight hour period.

Because of the hepatomegaly, the history of inadequate dietary intake and excessive alcoholic intake and the hypoprothrombinemia resistant to vitamin K therapy by the parenteral route, a sulfobromophthalein sodium test for liver function was undertaken on the twelfth hospital day. A dose of 430 mg. (5 mg. per kilogram) of the dye was slowly injected intravenously. Immediately after the injection the patient sat up in bed, complained of severe nausea and pounding heart action and had an urgent desire to defecate. He was extremely apprehensive and pale, but not perspiring. In this frantic state he declared that he could not use a bed pan in bed, and he was therefore helped out of bed onto a pan on a chair. A voluminous, brown, soft, formed stool was passed. While he was sitting on the bed pan, several minutes after the onset of this reaction, his breathing became increasingly difficult and labored. He repeatedly complained of being "unable to get air." Respirations were rapid and shallow, and the movements of air seemed to be exceedingly small. He appeared to have more difficulty getting air into the lungs than out. The skin of the face appeared blotchy with red and pale areas, circumoral pallor and intense cyanosis of the lips, arms and leg. Within five to eight minutes after the onset of this reaction the following treatment was instituted: (*a*) epinephrine hydrochloride (1:1,000, 0.4 cc.) intramuscularly with local massage, (*b*) continuous nasal oxygen and (*c*) 0.5 Gm. aminophylline in 30 cc. of water as a retention enema. Breathing became somewhat easier within ten minutes, and he was helped back to bed. However, the rapid shallow respirations continued. The hands and feet were cold to touch, and the skin of the arms and legs was deeply cyanotic. Widespread itching urticaria was noted over the arms and abdomen. The skin blanched easily on application of pressure, and the blanching persisted for several minutes. Because of apprehension, 75 mg. of meperidine (demerol®) hydrochloride was given intramuscularly, and in an attempt to counteract the allergic manifestations 20 mg. of diphenhydramine (benadryl®) hydrochloride was administered by the same route. The pulse was regular and full at a rate of 125; the blood pressure was 140 systolic and 90 diastolic: these vital signs were observed forty-five minutes after the injection of the dye. The excitement of this dramatic episode prevented accurate recording of the vital signs previous to this time. Fifteen minutes later the patient again had a violent urge to defecate and passed a mushy brown stool. No gross blood was observed in either of these bowel movements. The patient was noticeably weaker at this time and had to be lifted back into bed. In the course of the next thirty minutes he became thirsty and drowsy; the blood pressure fell gradually as the pulse became more rapid (160) and thready until both were unobtainable. An electrocardiographic tracing taken in the early phase of this episode as it began to look serious revealed a sinus tachycardia at a rate of 160 per minute with sharp peaking and increase in the amplitude of the T waves in the precordial leads. Cyanosis of the lips and extremities remained unchanged at this time. As these signs of shock developed, blood was drawn for cross agglutination. An infusion of 1,000 cc. of 5 per cent dextrose in isotonic sodium chloride solution was injected forcibly into the right femoral vein; the peripheral veins had collapsed. After about 300 cc. of fluid had been injected, the color of the skin rapidly returned to normal. This occurred about two hours after the onset of the reaction and fifteen minutes after the infusion had been started. A cannula was inserted in the saphenous vein over the left internal malleolus, and 500 cc. of plasma and 1,000 cc. of whole blood were given over a two hour period during which the blood pressure gradually rose to 125 systolic and 90 diastolic. There was no recurrence of the circulatory failure, and the patient returned to his previous state of well-being; the reaction appeared to have subsided. The following morning a purplish red, papulovesicular, deep seated rash was noted involving only the skin of the palms. This skin desquamated completely in the course of the succeeding four or five days. An electrocardiogram taken twenty-four hours after the reaction was normal; the T waves were now of normal amplitude. Two days after the reaction the white blood cell count was 10,000 with 8 per cent eosinophils. The eosinophilia (6 to 8 per cent) persisted during the subsequent three week period of observation.

COMMENT

The occurrence of a profound anaphylactoid reaction to the first intravenous injection of sulfobromophthalein sodium in a patient who was known to be sensitive to sulfadiazine arouses speculation as to a possible interrelation in the allergic mechanism. This patient received sulfadiazine for one day prior to hospital admission. When sulfadiazine therapy was resumed ten days later, widespread urticaria developed within eight hours. The skin lesions disappeared promptly on discontinuance of the sulfonamide drug and with oral administration of an antihistaminic agent (tripelennamine hydrochloride). Two days later a dramatic anaphylactic reaction followed the injection of sulfobromophthalein sodium. Subsequently persistent eosinophilia developed; eosinophils had not been observed previously in smears of the peripheral blood. In view of (*a*) the family history of allergic rhinitis, (*b*) the past history of serum sickness following tetanus antiserum and more recently an urticarial reaction to sulfonamide drugs and (*c*) the development of eosinophilia, this reaction would probably best be explained on the basis of atopy. Anaphylaxis is usually attributed to the release of histamine coincident with the union of an antigen and a reagin type of antibody. Speculation as to the origin of the antibody in a person who had never previously received sulfobromophthalein sodium suggests the possibility of cross reactivity with a reagin developed to sulfadiazine. Direct intradermal skin tests on the patient with the dye and with sulfadiazine gave an immediate wheal and erythema reaction; however, skin tests with sodium bromide and phenolsulfonphthalein were negative.

The mode of administration of the drugs employed in combating this anaphylactic state deserves comment. Epinephrine was given intramuscularly with local massage to facilitate absorption. It was not given intravenously, as in the case of Chambers and Moister, because of the dangers incident to this route of administration.[48] Aminophylline was given as a retention enema to avoid the hypotensive response to its intravenous administration. In view of these precautions, it does not seem likely that the events which transpired after the injection of the sulfobromophthalein sodium in the case herein reported were attributable to the therapeutic measures. The occurrence of this reaction lends support to the belief that the events observed by Chambers and Moister were due to the dye.

The sulfobromophthalein sodium test for hepatic insufficiency is too valuable an aid to permit such a rare but profound anaphylactoid reaction to contraindicate its use. However, since such serious reactions may occur it would seem advisable to exercise caution in the administration of the dye to an allergic person, as is done in the case of other drug sensitivities.

UNIVERSITY OF MICHIGAN LIBRARIES

Clinical Notes, Suggestions and New Instruments

FOREIGN BODY IN THE BLADDER

Removal of Thermometer with Stern-McCarthy Resectoscope

WALTER A. SCHLOSS, M.D.
and
MARK SOLOMKIN, M.D.
Hartford, Conn.

The story of foreign bodies in the urinary bladder is an old one, varied and fascinating. Brewer and Marcus [1] state that the medical literature from 1880 to 1946 contains reports of no less than 566 foreign bodies in the urinary bladder. The following objects are among those that have been found [2]: lead pencils, slate pencils, knitting needles, nails, hairpins, button hooks, feathers, paint brushes, kidney beans, watch chains, leather shoe laces, straw, chewing gum, chalk, slippery elm, paraffin, tallow, bougies and catheters. Also reported are a perfume bottle, a hog's penis (in female urethra), a condom, a toothbrush handle, a squirrel's tail, a thermometer, a snail, a candiru (a species of fish that penetrates the urethra and enters the bladder), candles, a sponge, a wasp and paraffin from the treatment of hernia by injection. Geyerman [3] reported removing a decapitated garter snake 18 inches (46 cm.) long from the bladder. Hoberg [4] removed, by suprapubic cystotomy, 23 inches (58 cm.) of insulated electric wire from the bladder of a man. Bond [5] found several dozen nails and tacks, two screws, glass, a stone, a piece of animal bone and enamel from a tooth, as well as feces and pus, all in the bladder of a man who had an ileovesical fistula.

Hankinson [6] reported the case of a woman who, while taking her vaginal temperature for birth control purposes, accidentally slipped the thermometer into the bladder. Removal was accomplished by placing the patient in a partial Trendelenberg position, passing the smallest size infant proctoscope through the urethra, passing an Eve nasal snare around the constriction of the bulb and extracting the thermometer.

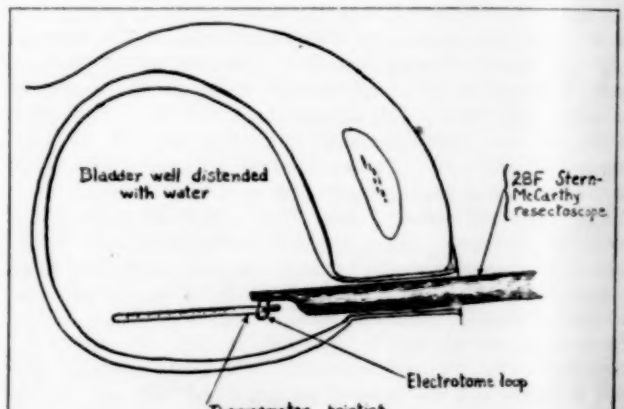
Aspinall [7] reported a similar incident in which the patient accidentally passed the thermometer into her bladder while attempting "to take her temperature in the vulva." As the patient was thin, it was possible to palpate the thermometer between the hands, one on the abdomen and one in the vagina. With the patient under anesthesia, the thermometer was extracted by manual manipulation (one hand on the abdomen, one finger in the urethra and an assistant's finger in the rectum). As might be expected, Aspinall reports that it was a tedious maneuver. The patient made an uninterrupted recovery.

In a general article on removal of foreign bodies from the bladder, Jeck [8] does not mention the use of the proctoscope or the resectoscope or manual removal. It is the use of the resectoscope in the case reported here which is of interest.

REPORT OF CASE

The patient, a 29 year old white nulligravida, had been married for one and one-half years and had failed to become pregnant, although no contraception was practiced. In an effort to determine her time of ovulation a gynecologist in another city had instructed the patient to take and chart her vaginal temperature each morning. On the morning when she was first seen by us, she had inserted the thermometer (an ordinary oral thermometer made by Taylor) in what she thought was the usual fashion but was unable to retrieve it. She was first seen at home, where vaginal and rectal examination failed to disclose the thermometer. A diagnosis of probable foreign body in the urinary bladder was made. This was confirmed in the office, where a 16 F Brown-Buerger convex cystoscope was easily introduced into the bladder without anesthesia and the intact thermometer was visualized lying transversely on the floor of the bladder.

The patient was hospitalized. Cystoscopic examination was again performed, this time with the patient under thiopental sodium anesthesia. Several attempts were made to guide the end of the thermometer into the sheath of a 28 F McCarthy foroblique panendoscope with the foreign body grasping forceps. This was unsuccessful, but we did succeed in turning the thermometer so that instead of lying transversely in the bladder it pointed toward the internal urethral opening. We then thought that we would make a gentle and cautious attempt to grasp the thermometer end with the Lowsley visualizing grasping forceps, realizing full well that the power of the jaws of this instrument was sufficient to break the thermometer if not properly handled. Dr. D. Dillon Reidy, attending urologist at St. Francis Hospital, suggested the use of the 28 F Stern-McCarthy resectoscope instead of the Lowsley instrument. This was done. The tip of the thermometer was guided into the electrotome loop and thus into the resectoscope opening by



Diagrammatic representation of the technic used in removing the thermometer from the bladder with the Stern-McCarthy resectoscope.

numerous excursions of the electrotome loop and manipulation of the resectoscope (the accompanying figure). When the tip of the thermometer was inside the electrotome loop, pointing straight into the urethra, pressure was made on the bladder suprapubically by an assistant and at the same time the resectoscope was gently and easily withdrawn. The thermometer came out intact, still within the loop, with its tip inside the resectoscope sheath.

The patient withstood the procedure well and went home the following morning, complaining only of slight burning of the external meatus at the end of micturition.

COMMENT

The value of the daily determination of basal body temperature in determining the probable time of ovulation and in planning pregnancy has been established.[9] In the early work on basal body temperature, the taking of the vaginal temperature was suggested. It was soon discovered that rectal temperatures were equally accurate. However, it is now apparent that changes in gonadal function can be determined in most cases by the careful recording of oral temperatures. Nevertheless, there are still those who persist in the use of the vaginal method of determining temperature. This unnecessary procedure is fraught with danger and can expose the patient to much risk and harm.

1. Brewer, A. C., and Marcus, R.: Foreign Body in the Urinary Bladder: An Unusual Case, Brit. J. Surg. **35**: 324 (Jan.) 1948.
2. Winsbury-White, H. P., cited by Brewer and Marcus.[1]
3. Geyerman, P. T.: Medical Curiosities [Snake in Bladder], J. A. M. A. **108**: 1409 (April 24) 1937.
4. Hoberg, J. E.: An Unusual Foreign Body in the Urethra and Bladder: Case Report, Urol. & Cutan. Rev. **50**: 678 (Nov.) 1946.
5. Bond, S. P.: Foreign Bodies in the Bladder, J. A. M. A. **83**: 1163 (Oct. 11) 1924.
6. Hankinson, J.: A Complication of Birth Control [Thermometer Accidentally Passed into Bladder], Brit. M. J. **2**: 574 (Oct. 11) 1947.
7. Aspinall, A.: Thermometer in Bladder, M. J. Australia **2**: 454 (Oct. 10) 1931.
8. Jeck, H. S.: Removal of Foreign Bodies from the Urethra and Bladder, Am. J. Surg. **36**: 197 (April) 1937.
9. Mazer, C., and Israel, S. L.: Diagnosis and Treatment of Menstrual Disorders and Sterility, ed. 2, New York, Paul B. Hoeber, Inc., 1946.

Whenever there are breakable objects in the bladder, such as thermometers, glass rods and tubes, there is great risk of breakage in removing them transcystoscopically. The method described here, with the use of the Stern-McCarthy resectoscope, obviates the danger of using a grasping or crushing instrument in extracting these objects from the bladder transcystoscopically. Dilatation of the urethra also is avoided. The advantages of removing foreign bodies from the bladder via the urethra are obvious.

CONCLUSIONS

1. The danger of using the vaginal method to determine basal body temperature is again stressed.

2. A method of recovering a loose object from the urinary bladder by the use of the resectoscope is described.

RESUSCITATION AFTER APPARENT DEATH FROM SPINAL ANESTHESIA

Effectiveness of Cardiac Massage and a New Method of Artificial Respiration

T. L. HYDE, M.D.
and
LEO V. MOORE, M.D.
The Dalles, Ore.

Resuscitation of a patient after her apparent death from spinal anesthesia with piperocaine hydrochloride (metycaine hydrochloride®) is reported herein; cardiac massage and a new method of artificial respiration were used.

REPORT OF CASE

History and Induction of Anesthesia.—A slender woman aged 26 in otherwise excellent health was found to have gallstones. In the past she had had two normal pregnancies and typhoid. She was admitted to the hospital, given pentobarbital sodium 100 mg. at 8 p. m. and again at 6 a. m. Thirty minutes before being brought to the operating room at 9 a. m. she was given a hypodermic injection of morphine sulfate 0.016 mg. and scopolamine hydrobromide 0.0003 mg., which produced an agreeable sedation. She was placed in right lateral level recumbency with the back arched, and a 22 gage spinal needle was easily introduced into the dural space between the third and fourth lumbar vertebrae. Spinal fluid dropped readily from the needle. Two cubic centimeters of spinal fluid was aspirated into a syringe containing 150 mg. of piperocaine hydrochloride and 45 mg. of ephedrine sulfate in 3 cc. of water. The 5 cc. volume of fluid was then introduced with moderate speed and the needle withdrawn. The patient was then turned onto her back with the operating table horizontal. The abdomen was prepared with cleansing and antiseptic solution and draped for operation. Ten minutes after introduction of the anesthetic solution the patient had anesthesia to the level of the lower end of the sternum, and a transverse incision was made over the gallbladder region. The liver edge overhung, so the gallbladder rest on the table was raised. The table was otherwise left flat. The patient conversed freely; her pulse and color were normal and respiration quiet, and the operation proceeded. An anomaly of the junction of the cystic and common bile ducts caused some delay in the operation.

Apparent Death and Resuscitation.—At about twenty-five minutes the anesthesist announced that the anesthesia level was at the clavicles, but the patient's condition otherwise was not changed. The cystic duct had just been severed and tied when the anesthetist announced that the patient's color was poor and that she had ceased to breathe. This was forty minutes after the introduction of the spinal anesthetic solution. The patient's color was indeed poor. There was no arterial pulse nor palpable cardiac impulse. The anesthesia machine mask was applied with 100 per cent oxygen in the bag. Artificial respiration was induced by rhythmic pressure on the chest. Some respiratory exchange was produced without improvement in the patient's color. The patient had died by all ordinary criteria of stoppage of heart beat and respiration.

The left hand of the surgeon was introduced into the abdomen through the incision and up under the diaphragm to feel of the heart. A desperate massage of the heart was begun, poking at the heart every second or so. Soon it was found that the heart could be squeezed between the palmar surface of the hand and the anterior chest wall. After about 90 seconds of such massage the skin of the forehead was noticed to become definitely pink. This was encouraging; an intratracheal rubber air way tube was then introduced and the mask reapplied. Artificial respiration by intermittent pressure on the bag of the anesthesia machine seemed difficult to perform, but it was noticed that the upward pressure of the massaging hand on the heart would produce some respiratory exchange. The rapid massage of the heart was continued, with the left hand in the abdomen, and adequate respiration was produced by slow, alternate lifting and depressing of the lower end of the sternum with the right hand. The fingers were hooked around the manubrium sternum through the abdominal incision. The color of the skin became nicely pink over the face and arms of the patient. Circulation was being maintained, although there was no suggestion of any respiratory effort on the part of the patient or of any cardiac contraction. Stimulants (1 mg. of epinephrine chloride, 0.5 Gm. of caffeine and sodium benzoate and 2 cc. of 25 per cent nikethamide solution) were introduced into the left cubital vein followed by 5 per cent dextrose in isotonic sodium chloride solution.

Twelve minutes after the anesthetist announced the cessation of pulse the heart was felt to give a single powerful contraction. Ten seconds later there was another powerful contraction, then several more such contractions, and soon the heart began a rapid, regular beating which persisted. The surgeon's left hand was practically stiff with fatigue. Respiration still had to be maintained, but this was accomplished easily by the rhythmic alternate lifting and depressing of the sternum. After thirty-two minutes of artificial respiration sporadic spontaneous respiratory efforts were noticed; these soon became regular and adequate.

Operation and Subsequent Course.—The gallbladder was then removed and the abdomen closed. A pint (500 cc.) of type O refrigerated blood was given and 2 pints (1,000 cc.) of dried plasma. The blood pressure soon rose to 100 systolic and 60 diastolic, with a pulse rate of 140 and a variable respiratory rate of 12 to 22 per minute. The patient remained unconscious for five days. She had several clonic convulsions in the first thirty-six hours, some of which were exceedingly severe and of several minutes' duration. Cyanosis during convulsions became pronounced. The spinal fluid ten hours after operation was normal. Mass reflexes, including micturition, were present to painful stimuli. Her temperature rose only to 101 F. and she was not anemic, but there was leukocytosis (20,000 cells per cubic millimeter). The electrocardiogram indicated myocardial injury with an isoelectric T wave in lead 1 and slight inversion of the T wave in lead 2. Voltage was a low normal. Tachycardia continued above 110 for several days. There was no distention or other complication of the abdomen. Nutrition was maintained intravenously at first and then by indwelling gastric nasal catheter. The patient became noisy on the third day and required sedation. She would grimace and cry out if disturbed. On the fifth day it became apparent that she had some awareness of her surroundings. She would smile easily and seemed serene and happy. She would swallow water and food. Catamenia occurred. Tendon reflexes were present normally throughout, but some stiffness of the legs persisted for eight days. It then became possible for her to sit on the side of the bed. Her hands moved slowly and stiffly. She gradually improved. First speech appeared on the tenth day and was very slow, as were her other motions. She was able to leave the hospital on the twenty-second day but required attention for three weeks longer before she could be trusted to walk alone without falling. There was neither persistence of the stiffness nor spasticity, but her motions were slow and somewhat clumsy. She remained remarkably patient and cheerful throughout her convalescence. This had been her disposition before her illness. Sexual appetite returned during the third month, and the electrocardiogram was normal at the

UNIVERSITY OF MICHIGAN LIBRARIES

fourth month. At six months her only complaint was inability to thread a needle; this apparently indicated a slight residual clumsiness. She drove her car and had neither indigestion nor headache.

COMMENT

There is no reason to believe that this case was anything other than an ordinary instance of cardiorespiratory collapse resulting from too high a level of spinal anesthesia. The mechanism of respiratory paralysis is well understood. The mechanism of cardiac arrest is less easily explained. It is commonly described as a terminal event caused by prolonged medullary anoxia. No such prolonged anoxia occurred prior to "death" and we suggest that anesthetization of spinal and lower cranial nerves is associated with cardiac arrest directly through a reflex mechanism.

The premedication and technic of the spinal anesthesia were entirely routine and had been performed many times in a similar manner for upper abdominal surgery; the technic had not always been entirely successful but occasionally had required supplementary inhalation anesthesia because the level of anesthesia would not rise high enough. We were surprised when the anesthetist announced that the level of anesthesia had mounted to the clavicles at twenty-five minutes, because we believed that the anesthetic agent had previously become well fixed at a lower level. It seemed improbable that any higher creeping could occur after so long a time; hence, we were not alarmed. Definite upward progression of the anesthesia level did occur certainly after twenty-five minutes and apparently after even thirty-five minutes, facts which we deem worthy of emphasis. We have taken pains to examine this matter and have found additional instances of late upward progression with piperocaine hydrochloride and also another particular instance in which tetracaine anesthesia for hysterectomy was associated with brief respiratory paralysis. Usually, of course, the level of anesthesia does not change after the first ten to fifteen minutes.

The heart had definitely stopped beating and was soft and flabby. The change in color of the skin to a beautiful pink was also definite, evidencing the entire success of the massage. This massage was a difficult physical feat for the surgeon; in a similar case, if the necessity for massage was prolonged, incision of the diaphragm and pericardium might be justified for greater facility. We believe it is not generally appreciated that successful massage can be accomplished through the abdomen or that successful resumption of function can thus be induced.

This method of artificial respiration, which has not been described before to our knowledge, is the most effective we have seen. It reproduces the natural respiratory action of the chest. Even the diaphragm was pulled down by the elevation of the thoracic cage. It is available, of course, especially to surgeons who have a patient with an open abdomen before them, although the same mechanism could be accomplished by a hook such as a small retractor slipped under the lower end of the sternum or possibly a firm grasp of it by a towel clip or tenaculum. The essential feature is the upward lift. The weight of the chest seems to expel the air fairly well. Elevation of the head of the table might serve to fix the diaphragm and facilitate expiration, but whenever artificial respiration is necessary the head-low position is usually also desirable for better cerebral circulation, as it was in this instance.

CONCLUSIONS

Our experience in the case of apparent death with resuscitation reported herein led to the following conclusions:

1. Massage of the heart by the hand in the abdomen through the diaphragm can adequately maintain circulation for twelve minutes or longer.

2. Manipulative artificial respiration by rhythmic alternate upward and downward pressure on the lower end of the sternum is effective and easily done.

3. Piperocaine hydrochloride (metycaine hydrochloride®) and possibly other agents for spinal anesthesia may occasionally be slow to fix themselves to the spinal nerve tissue and can dangerously extend higher along the spinal canal as long as forty minutes after instillation.

ANURIA FOLLOWING RADIATION THERAPY IN LEUKEMIA

HAROLD LEAR, M.D.
and
GORDON D. OPPENHEIMER, M.D.
New York

In a patient in whom anuria developed after radiation therapy for chronic lymphatic leukemia the anuria was caused by complete obstruction of both ureters with uric acid crystals. Although the metabolic processes in this sequence of events are well known, a case of anuria of this type could not be found in the literature.

It is recognized that there is an increase in the uric acid metabolism of patients suffering from leukemia. Radiotherapy causes the destruction of many white blood cells and the subsequent liberation of enormous amounts of nucleoproteins, resulting in an excessive increase in the production of uric acid. This leads to hyperuricacidemia, uric acid crystalluria and actual stone formation, a potential danger following radiation therapy in leukemia.

Although the mechanism involved is easily understood, it is doubtful whether these complications are fully appreciated and watched for in the routine treatment of leukemia. Merrill[1] has reported 5 cases of uremia developing shortly after radiation therapy in leukemia. Three of these patients had uric acid calculi. When patients are to receive roentgen treatment for leukemia he advised a careful study of their urologic status and uric acid metabolism before and during treatment. Low purine diet, alkalinization of the urine and administration of cinchophen are also recommended.

REPORT OF CASE

W. A., a white man aged 61, came to the outpatient department of Mount Sinai Hospital on Aug. 4, 1948. He complained of a painless swelling of the neck of one year's duration. During the past three months he had also noted increasing weakness, exertional dyspnea and a weight loss of 30 pounds (13.6 Kg.).

On examination a collar-like swelling of the cervical region was found, due to enlarged lymph nodes. Large lymph nodes were also palpable in both axillary, epitrochlear and inguinal regions. Coarse rhonchi were present in both lung fields, and there was evidence of pleural effusion on the right side. The liver was palpated 4 fingerbreadths below the costal margin and the spleen 5 fingerbreadths below the ribs. Several retroperitoneal masses were also palpable. There was bilateral pitting edema of the legs.

The hemoglobin was 10.5 Gm. per hundred cubic centimeters. The white blood cell count was 475,000 per millimeter, with 94 per cent lymphocytes and 4 per cent lymphoblasts. The urine was acid and contained urate crystals on microscopic examination. The sternal marrow observations were characteristic of chronic lymphatic leukemia.

Treatment consisted of a course of total body radiation of 50 r anteriorly and posteriorly divided over a period of twelve days. There was little change in the physical observations, although the patient felt improved. The white blood cell count gradually dropped and was 45,000 on Oct. 18, 1948.

On October 20 the patient was admitted to the Urological Service of Mount Sinai Hospital. He complained of nausea, vomiting and anuria persisting for more than twenty-four hours. Generalized lymphadenopathy was still present, and both the liver and spleen were enlarged. There was bilateral tenderness of the costovertebral angle, but neither kidney was palpable.

Cystoscopy was performed immediately on admission of the patient to the hospital. There was no urine in the bladder. Clumps of yellow crystals were seen throughout the bladder. Protruding from and occluding both ureteral orifices were clumps of these yellow crystals. Catheters were passed with considerable difficulty to both kidney pelves. Thirty cubic centimeters of cloudy urine was aspirated from each kidney,

From the Urological Service, Mount Sinai Hospital; resident in urology (Dr. Lear).

1. Merrill, D.: Uremia Following X-Ray Therapy in Leukemia, New England J. Med. **222**: 94, 1940. Merrill, D., and Jackson, H.: The Renal Complications of Leukemia, ibid. **228**: 271, 1943.

and a rapid flow of urine continued bilaterally from the catheters. He was sent to the ward with the catheters left indwelling.

Laboratory examination showed that his hemoglobin was 10.5 Gm. per hundred cubic centimeters. The white blood cell count was 53,000 per millimeter, with 87 per cent lymphocytes. The yellow crystals found in the bladder were uric acid crystals. The urine aspirated from both kidneys was acid and loaded with uric acid crystals. Urine culture revealed a strain of Aerobacter aerogenes which was highly resistant to penicillin and streptomycin. The blood urea nitrogen level was 55 mg. per hundred cubic centimeters, and the carbon dioxide-combining power was 26 volumes per cent. The blood uric acid level was 15.8 mg. per hundred cubic centimeters.

After cystoscopy the patient's urinary output was maintained at 2 to 4 liters daily. However, because of severe pyelonephritis and septicemia he failed to improve. Blood cultures were positive for A. aerogenes. The fulminating urosepsis failed to respond to vigorous antibiotic therapy, and the patient's condition deteriorated rapidly. He died on the fourteenth day of hospitalization. Unfortunately, permission for postmortem examination was unobtainable.

COMMENT

The white blood cell count dropped from 475,000 to 45,000 within two months after radiation therapy. This rapid destruction of nucleoproteins naturally caused a decided increase in the uric acid metabolism of the body. What followed was an elevation of the blood uric acid level to 15.8 mg. per hundred cubic centimeters, an intensive uric acid crystalluria and anuria due to mechanical blockage of both ureters by uric acid crystals. It is unfortunate that preliminary renal and uric acid studies had not been done. This is certainly advisable in leukemic patients who are to receive radiation therapy. It is reasonable to assume that if the proper precautions had been taken the complications which ensued in this case might have been avoided. Perhaps radiation in divided and spaced doses would help by preventing a precipitous destruction of the white blood cells. Undoubtedly the forcing of fluids and alkalinization of the urine are of great importance. A low purine diet is also advisable.

Although such prophylaxis is principally the problem of the radiotherapist and the internist, it is important for the urologist to be cognizant of the urologic complications which may accompany radiation therapy for leukemia.

SUMMARY

A case of anuria following radiation therapy for leukemia is reported. The etiology and prophylactic measures are discussed.

17 East Ninety-Sixth Street (28).

Whither Psychiatry?—Great physicians of the past and present have been and are leaders of thought regarding the application of the principles of medicine laid down in the great Hippocratic age; but it is only the rare and the very great who have shown insight into the frailties of human behaviour and have correlated these frailties with the health and happiness not only of individuals but of groups of individuals, communities, countries and nations.

In these times of changing social conditions it is hoped that the physicians of the future will be leaders, in the sense that they will be regarded as the repository of confidences from people of all shades of opinion and have the sure knowledge of human relationship as well as the art of healing. Psychiatry thus surely has something to give to general medicine, if the inborn suspicion of something that appears to be outside the realms of physical science can be overcome. The psychiatrist has a technical knowledge of the social aspects of medicine and should be the agent to forward the human relationship side of medical practice. In these days, when nations are eyeing each other with suspicion, and when there are social rifts within nations, medical science must do more than aim at teaching the individual. With the auxiliary services at our disposal we should, as physicians, not only as psychiatrists, attempt to help the individual to make social adjustments for the betterment of the community.—Maudsley, H. F., The Beattie-Smith Lectures, *The Medical Journal of Australia*, April 15, 1950.

Council on Foods and Nutrition

There has been much interest in the influence of the quality of soil on the nutritive value of foods. Many papers expressing widely divergent opinions have been written on the subject. Because of the confusion of information made available to the public, the Council on Foods and Nutrition felt that it would be appropriate to seek a discussion of the subject by some well known authority. In response to the Council's invitation, Dr. Leonard A. Maynard has written this paper.

JAMES R. WILSON, M.D., Secretary.

SOILS AND HEALTH

LEONARD A. MAYNARD, Ph.D.
Ithaca, N. Y.

Most of man's food supply comes from the soil, either directly through food crops or indirectly as animal products. The total amount of food produced depends on the fertility of the soil. Many peoples of the world are undernourished because the productivity of the land available is not sufficient to supply the total amount of food needed. A low level of productivity, either absolutely or in terms of the population to be fed, means a lower standard of living. Poverty is often accompanied with malnutrition and disease. In these respects soil conservation and improvement are of great general importance for the promotion of health.

A more direct relationship between soils and health is assumed in the thesis that the nutritional quality of the food supply and particularly of specific foods, apart from the total amount produced, is governed by the fertility level of the soil and is thus influenced by the various measures which can improve this fertility. Such a relationship is the theme of an increasing number of articles appearing in books and magazines, both popular and scientific. Some of these articles are readily recognized as being based on faddism, emotion or propaganda rather than on facts. Others have an experimental basis and seem more rational and trustworthy accordingly. A large amount of research is currently being carried out in this general field. It is the purpose of the present article to review the evidence concerning the extent to which man's health may be dependent on the soil which produces his food supply.

The importance of the soil in relation to the mineral requirements of grazing animals has long been recognized. Acute symptoms of phosphorus, cobalt, iodine and copper deficiencies in certain areas have thus been identified. These findings are frequently cited as evidence that the human population may similarly suffer from dietary diseases caused by soil deficiencies in certain areas. However, except in the case of iodine, the intake of which is governed by the water more than by the food supply, no specific human ill has been traced to a particular soil deficiency. Actually the general situation for animals and man is by no means comparable. Differing from that of the grazing animal, modern man's food in industrialized countries generally comes from a variety of localities and regions. Home-produced food may play a minor role in the diet which he chooses. Further, much of his food is so altered by manufacturing, preserving and cooking processes as to make it impossible to trace its deficiencies to any specific characteristic of the soil.

As is discussed later, man obtains a large proportion of his food supply from milk, meat and eggs, the

Professor of Nutrition and Biochemistry at Cornell University and Director of the School of Nutrition at that institution.

UNIVERSITY OF MICHIGAN LIBRARIES

nutrients of which are much less variable than are those of forage, which forms a large part of and frequently the sole ration of cattle. In all these respects the relation of man's nutrition to the soil is much less direct than that of animals.

Nevertheless, if the level of the fertility should markedly affect nutritional quality, the value of the general food supply would be influenced thereby. Declining soil fertility might thus contribute specifically to the occurrence of malnutrition and ill health among certain groups living largely on locally produced foods and in areas of low fertility, even though no acute signs such as those established for animals have been noted.

These possibilities form the basis of most of the articles which have attributed human diseases of various sorts to soil deficiencies in a given area. Unfortunately, the arguments or data presented have been general rather than specific. The increased prevalence of certain diseases, not necessarily nutritional, in a given area is cited, along with evidence that the soil in the area is deficient in certain nutrients needed by food crops or is of low general productivity. The conclusion is then drawn or inferred that the character of the soil is responsible for the ill health, or at least for a higher incidence of certain specific diseases. Other factors which may be concerned, such as low economic status, lack of medical service and ignorance, are disregarded. Commonly, little or no attention is given to the source and kind of food actually eaten. The relationship between soil and health is inferred but in no sense established by the correlation noted. As an example, the higher percentage of rejections under selective service in areas of poor soil have been cited as evidence of a nutritional relationship, without any consideration of the many other factors involved.

It is the general public rather than the physician that is confused by articles stating or inferring that such diseases as cancer, arthritis, diabetes and multiple sclerosis have a basis in soil. Other claims which are equally untenable scientifically, or equally without experimental basis, are more difficult to assess without an understanding of the principles of crop and animal production. It may seem reasonable to assume a direct relationship between the content of a given mineral in the soil and its content in a food crop or between what the animal eats and the nutritive value of its products used as food and accordingly to attribute certain nutritional deficiencies to soil factors. Actually, such broad generalizations and interpretations are untenable in the light of research on crops and animals. The specific instances in which such relationships hold must be examined in terms of their actual effects on dietary situations. For the most part, such examinations have not been made by those who are promoting the thesis of the dependence of health on the soil.

The idea advanced several years ago that the lower incidence of dental caries in Deaf Smith County, Texas, is due to a higher calcium and phosphorus content of the food crops in the area as well as to the fluorine in the water continues to be cited, though detailed analytical data by McClure [1] showed that the mineral levels were not higher on the average than in similar crops grown elsewhere. A higher calcium and phosphorus content of the milk produced in this area, as an effect of the soil, was also claimed although experiments have repeatedly shown that the level of these minerals in the milk is in no way influenced by the feed of the cow. There is some variation according to breed and individual animal but none as a result of the feed consumed.

Articles which suggest a correlation between the incidence of dental caries and calcium level in the soil can have no significance unless it is shown that related differences in the calcium intake in terms of home-produced food crops are concerned. Since, on the average, about 75 per cent of the calcium in man's food supply comes from dairy products, it seems appropriate to consider their intake before postulating calcium deficiency of the soil as a cause of caries. In any study of area relationships consideration must also be given to the proportion of food actually consumed which is produced locally and to the proportion which comes from elsewhere as fresh or manufactured products, notably cereals, fruits and vegetables. This has not been done in many of the studies in question.

The recent discoveries of the interrelated functions of certain trace elements and vitamins of the B complex in basic enzyme systems have elicited claims that deficient soils may thus play an important role in the occurrence of human ills. No definite evidence has been produced, however, in support of the assumptions here involved.

It must be concluded that, with the exception of the long-recognized case of iodine, none of the reports which have suggested correlations between soil deficiencies and human diseases has been based on studies or observations which were sufficiently critical to establish any direct relationship, although some of them do provide leads which are worthy of further investigation taking account of all the factors which may be involved. For the present purpose, it is more helpful to examine the specific evidence available from controlled experiments on variations in the nutritional quality of foods which are attributable to soil factors.

ANIMAL PRODUCTS

Because soil deficiencies cause certain mineral deficiencies in grazing animals, the idea is advanced frequently that human food may thus be similarly deficient and that the protein and vitamin content of animal products may be adversely affected as well. An examination of the bases for this idea is of real importance because animal products furnish approximately 80 per cent of the calcium, 70 per cent of the phosphorus and riboflavin, 60 per cent of the protein, 45 per cent of the nicotinic acid, 40 per cent of the thiamine and iron and smaller percentages of the other minerals and vitamins in man's food supply, according to the latest figures available from the United States Department of Agriculture.

The fact has been mentioned that the calcium and phosphorus content of milk is not influenced by the cow's ration. This is contrary to the frequent statement that children cannot build good bones with milk from cows whose feed comes from a soil deficient in these minerals. Since approximately 75 per cent of the calcium in the average American diet comes from milk and dairy products, those who attribute human calcium deficiency to the soil should first of all take the level of milk consumption into account. The animal's ration has no significant influence on the phosphorus content of its phosphorus-containing tissues. The low iron content of milk cannot be increased by diet. Neither is its high level in eggs due to dietary influence. While anemia and the lower storage of iron in animals has been brought about experimentally on a low iron ration, there is no reliable evidence that in practice such a con-

1. McClure, F. J.: Low Dental Caries Experience and Food Products in Deaf Smith County, Texas, J. Am. Dent. A. **31**: 1091, 1944.

dition is the result of a deficiency of iron in the soil. Some of the trace elements are known to vary in milk, meat and eggs according to the animal's ration. The nutritional importance of this is doubtful in the cases studied but unknown in others.

The vitamin content of certain animal products is influenced by what the animal eats. The outstanding example is the vitamin A content of milk and butter, but the variation here is due to the kind of roughage consumed, its stage of maturity at harvest and storage factors. In none of these does the soil play a direct role. The same is true for the variations which occur in the fat of meat. The levels of several of the vitamins found in eggs vary significantly according to the hen's diet. In practice, however, such variations result from the kinds of feed making up the total ration and the extent of vitamin supplementation rather than from any effects of the soil. The thiamine content of pork can be doubled by massive intakes, but in actual feeding practice no significant variations occur. Neither the riboflavin nor the nicotinic acid content of animal products is influenced to any important degree by what the animal eats, according to present evidence.

No evidence has been found that the protein value of animal products is influenced by the soil, except as the yield and the protein content of the forage may be inadequate for maximum growth and production. It seems unlikely that the distribution of amino acids in specific body proteins is subject to dietary alterations. This topic deserves further study, however, now that appropriate methods are available.

The foregoing discussion indicates that the nutritive value of animal products, which contribute so greatly to the kind of diet required for health, is not significantly influenced by soil factors. It should be mentioned that these factors may limit the extent of the livestock industry which can be maintained in a given area and in turn limit the animal products available. Phosphorus, iodine and cobalt deficiencies are cases in point. Treatment of the soil is not necessarily called for, however, because these deficient minerals can be added directly to the animal's ration. In connection with the contribution which animal products make to the human diet it also should be emphasized that many of our population, particularly those who because of low income present the greatest nutritional problem, receive far less than the average intake. For these persons, factors which may influence the nutritional value of foods of plant origin are of much greater importance.

FOODS OF PLANT ORIGIN

It is well established that infertile soils restrict the types of crops that can be produced as well as their yield. On soils which are naturally better or are kept in a higher state of fertility by appropriate treatments there is a wider choice of crops which can be grown, providing an opportunity for the introduction of plants having a higher nutritional quality. For example, if a soil is suitable for growing a legume such as alfalfa instead of a grass such as timothy, the forage produced on this soil can be markedly richer in protein, calcium and carotene. This can in turn contribute to human nutrition by increasing the supply of meat and milk produced in a given area. Of more direct application is the fact that fertile soils can provide a food supply of higher nutritional quality for man through the production of vegetables in kinds and amounts otherwise impossible. Without fertilization, the soils of the Eastern seaboard would not produce the vegetables or fruits which make such an important contribution to the diet. In all these respects soil conservation and improvement can result in better human nutrition if nutritional quality is kept in mind in planning the crops to be grown.

Since wide differences exist at harvesting time in the nutrient content of a crop of a given type and variety, there arises the more specific question of whether or not a higher state of fertility, either natural or that which is produced by fertilization or other treatment, results in a higher nutrient level in a specific crop compared with that of the same type of crop grown on a poor soil. The literature is filled with reports of studies of this question, especially reports on the effects of mineral content.

Minerals.—It is well established that there are regional and local differences in the amounts of certain minerals in the soil, which are reflected in corresponding differences in the level of these minerals in certain food crops. The significance of these differences in human nutrition requires examination. An often-cited example is the case of phosphorus in the Central Basin and the surrounding Highland Rim in Middle Tennessee. Data published by the Tennessee Experiment Station [2] show the soil of the basin to be six times as rich in phosphate (P_2O_5) as the soil of the rim and to produce lespedeza forage containing over twice as much phosphorus. Animal experiments are cited to show the superior nutritive value of the phosphorus-rich hay. In contrast to the situation in animal nutrition, however, getting enough phosphorus into the human diet is a minor problem. This fact was indicated by the extensive countrywide surveys made in the critical prewar period (1934 to 1937) by the Bureau of Home Economics.[3] Seldom were deficiencies indicated, even at the lowest income levels.

On the other hand, as indicated by these surveys and also by current data on food supplies, calcium is much more likely to be deficient in the human diet. Thus, soil differences which are reflected in foods may be of much greater importance, particularly for those consuming only limited amounts of dairy products. According to Beeson,[4] the calcium content of the soils in a given region can vary widely according to soil type and parent rock, and from one region to another according to type of vegetation, climate and management. As one goes from Florida toward the Northwest there is a gradual increase in the calcium content of the soil, inversely correlated with rainfall. According to the studies of Bear,[5] this increase is reflected in a greater calcium content in various vegetables. The average calcium content in the dry matter of cabbage in the Eastern Coastal states was 0.59 per cent and in the East North-Central states and Colorado 0.70 per cent. The difference here represented, approximately 20 per cent, if applied to all the calcium supplied by the green, leafy and yellow vegetables available for human consumption in 1948, would increase the daily per capita supply by 55 mg., or 5.3 per cent. Bear reported that the iron, copper and cobalt content of vegetables tended to increase from east to west. For all minerals studied the wide individual

2. Elements of Life, Popular Bulletin 1, Tennessee Agricultural Experiment Station, 1940.

3. Stiebeling, H. K., and Phipard, E. F.: Diets of Families of Employed Wage Earners and Clerical Workers in Cities, Circular 507, United States Department of Agriculture, 1939. Stiebeling, H. K.; Monroe, D.; Phipard, E. F.; Adelson, S. F., and Clark, F.: Consumer Purchases Study, Family Food Consumption and Dietary Levels—Five Regions, Urban and Village Series, United States Department of Agriculture, Miscellaneous Publications No. 452, 1941.

4. Beeson, K. C.: The Soil Factor in Human Nutritional Problems, Nutrition Rev. **7**: 353, 1949.

5. Bear, F. E.: Regional Variations in the Mineral Composition of Vegetables, Land **7**: 378, 1948.

UNIVERSITY OF MICHIGAN LIBRARIES

variations for vegetables of the same variety is stressed, reflecting the influence of factors other than region.

In 1940 Abbott and Ahmann [6] reported data suggesting that the occurrence of anemia in certain districts in Florida was correlated with a low iron content in the home-grown vegetables produced on deficient soils in the areas. Their results are cited frequently as evidence of a direct soil-health relationship, and thus further studies would seem desirable, particularly in other areas. There is some evidence that the iron content of vegetables tends to be higher where the organic matter in the soil is high. The areas of cobalt deficiency which are reflected in the food supply and health of cattle and sheep may be of importance to man, but thus far experiments have failed to demonstrate a dietary need for this element in species other than ruminants, except as a constituent of vitamin B_{12}.

There are many studies which show that fertilization with a given mineral element increases its content in a specific crop in a specific location. Other studies, however, have shown that these results do not hold for the crop in the same area another year or for other crops grown in the same location the same year. Thus it is evident that many variables besides soil treatment are involved, and, accordingly, generalizations in terms of human or animal nutrition are of limited value.

The most complete and reliable information regarding the effects of fertilization has come from a series of cooperative studies by a group of workers in several southern experiment stations. The original reports are cited and reviewed by Sheets.[7] In six states a total of twenty-nine experiments were carried out to study the calcium, iron and phosphorus content of turnip greens, involving sixteen different fertilizer treatments. The experiments were so planned as to permit a statistical analysis of the data as a whole. Phosphorus fertilization increased the phosphorus content of the greens in twenty-seven of the twenty-nine experiments but tended to decrease both calcium and iron content. Calcium addition increased its content in the crop in twenty of the experiments, but significantly in only four of them. The average increase for the experiments as a whole was only 0.03 per cent. Nitrogen fertilization, which had by far the greatest effect on growth, caused large reductions in calcium and iron content. A similar experiment was carried out with cowpeas, resulting in wide variations in mineral content from place to place but in a lesser effect from specific fertilizer treatments than that obtained on turnip greens.

It would be particularly helpful to human nutrition if the calcium content of leafy vegetables could be markedly and consistently increased by fertilization. Neither the comprehensive experiments by the Southern workers nor any others that have been properly conducted furnish evidence that this is possible. It has been shown that fertilization may increase the content of one mineral but decrease that of another. For example, heavy potash treatments tend to double or triple the potassium content of crops, but frequently a decreased calcium content results. It is clear that fertilization which increases yield does not necessarily increase the nutritive value. In fact, the reverse may be true, as Sheets concludes in her review:

> It has also been shown that when soil fertility is improved by the addition of nitrogen and other fertilizer factors so that the plants make better growth, the concentration of certain nutrients, such as calcium, phosphorus, iron and vitamin C, may actually be reduced. Thus, poorly grown plants which are the result of soil deficiencies may have a higher nutritive value on the whole than well grown plants not suffering from these deficiencies. This does not support the common assumption that poor soil produces plants of lower nutritive value than good soil.

However, this conclusion should not cause us to lose sight of the importance of soil fertility in terms of yield of nutrients per unit of land. While nitrogen fertilization decreased the calcium content by an average of 12 per cent in the twenty-nine experiments on turnip greens previously cited, it increased crop yield by 50 per cent in the thirteen experiments in which yield was measured. Thus fertilization markedly increased the production of calcium per acre through lowering its concentration in the crop.

Experiments have shown more consistent increases in certain trace elements, such as manganese, zinc and cobalt in crops through fertilization than has been indicated for the major elements in the previous discussion. Here lies an important field for further experimentation which must include studies to give more information regarding human needs for these elements and their distribution in the general food supply. Present data do not justify the emphasis which is being placed by some on the nutritional significance of variations in these elements in the soil.

The influence of mineral supply on the mineral concentration and nutritional quality of plants has been reviewed extensively by Beeson.[8]

Vitamins.—The possible role of soil fertility in the vitamin values of foods of plant origin is of special importance in the case of ascorbic acid and carotene because such foods furnish a large proportion of the customary intake of these vitamins. There are a number of papers in the literature dealing with this question. Unfortunately many of the experiments described were not so designed as to rule out genetic and climatic variables, which are now known to have a considerable influence on the level of these vitamins in a given crop. The more trustworthy experiments generally have yielded negative results. Extensive studies at the United States Plant, Soil and Nutrition Laboratory at Ithaca, N. Y., have dealt with this general problem. Hamner and his co-workers [9] found wide differences in the ascorbic acid content of tomatoes grown from the same seed in different areas throughout the country but no differences when the soils from these areas were brought to the same location and the experiment repeated. Using the same material, Ellis and Hamner [10] obtained similar results with carotene. In these same reports the investigators also described controlled experiments using wide variations in the supply of calcium, magnesium, nitrogen, phosphorus and sulfur, in which marked differences in growth resulted without affecting the content of the vitamins. Similar negative results were obtained by Lyon and others [11] in experiments in which riboflavin content was studied along with deficiencies of manganese, zinc, copper, molybdenum and iron.

6. Abbott, O. D., and Ahmann, C. F.: Human Relationships, Florida Soil Sc. Soc., Florida Proc. **2**: 109, 1940.

7. Sheets, O.: The Relation of Soil Fertility to Human Nutrition, Bulletin no. 437, Mississippi Agricultural Experimental Station, 1946.

8. Beeson, K. C.: The Effect of Mineral Supply on the Mineral Concentration and Nutritional Quality of Plants, Bot. Rev. **12**: 424, 1946.

9. Hamner, K. C.; Lyon, C. B., and Hamner, C. L.: Effect of Mineral Nutrition on the Ascorbic Acid Content of the Tomato, Bot. Gaz. **103**: 586, 1942.

10. Ellis, G. H., and Hamner, K. C.: The Carotene Content of Tomatoes as Influenced by Various Factors, J. Nutrition **25**: 539, 1943.

11. Lyon, C. B.; Beeson, K. C., and Ellis, G. H.: Effects of Micro-Nutrient Deficiencies on Growth and Vitamin Content of the Tomato, Bot. Gaz. **104**: 495, 1943.

Reder and others [12] have reported the results of an extensive cooperative project of the Southern Experiment Station workers on the effect of fertilization on the vitamin C content of turnip greens. Any effects noted were small and variable in contrast to the larger influence of other factors. Another cooperative project of the southern workers reported by Speirs and others [13] dealt with sweet potatoes grown in different areas and fertilized with various combinations of nitrogen, potassium, phosphorus and calcium. They reported that there was relatively little effect on carotene or vitamin C content. Similarly, Karikka and her co-workers [14] found that the fertilization of white potatoes had no consistent effect on ascorbic acid content, although varietal and locational effects were noted.

Cereals are an important dietary source of several of the vitamins of the B group, but any influence of the soil can have no practical effect on the products actually consumed in view of the losses in milling and also of "enrichment" practices.

By no means all crops and all vitamins have been studied for possible soil effects. The generally negative or unimportant results, however, when soil factors alone have been the variables, in contrast to the large differences among varieties and the markedly positive effects regularly produced by genetic and climatic factors, make it highly improbable that differences in the vitamin content of specific food crops should be attributed in any significant degree to the soil. Neither does a reliable basis appear to exist for the frequent claims that "organic" fertilizers in contrast to "inorganic" sources increase vitamin content.

Protein.—In the United States 80 per cent of the protein which man obtains from foods of plant origin comes from grains, primarily wheat. It is recognized that a given variety of wheat can vary as much as 20 per cent in protein content according to the location where it is grown. This locational effect is probably a combination of climatic factors and type of soil. There is no evidence that it is under the control of measures for conservation and soil improvement. In any event, the milling of cereals and the blending of grains in the process would rule out any direct effect of a given soil on the human diet. Specific fertilization measures, notably the addition of lime, may increase the nitrogen content of certain other crops, but the nature of the calcium salt used and the fertilizer combination cause variable results. Useful generalizations in terms of human foods are not possible on the basis of the data now available.

A question of special interest is whether the amino acid distribution and thus the protein quality are dependent on the nature of the soil and can be influenced by fertilization. It is known that in the areas where the sulfur content of the soil is low the protein content in alfalfa tends to be low also. A recent study indicates that a lowering of the sulfur-containing amino acids in the protein may be involved. Information from the Department of Agricultural Chemistry [15] at Purdue University states, "Analyses of samples of alfalfa grown at different levels of sulphur fertility in white quartz sand show that a sulphur deficiency will reduce the methionine and cystine content of alfalfa 20 to 50 per cent." This report indicates a specific way in which the soil might influence the quality of the protein of a food of plant origin. There are a few other experiments bearing on this question, none of which, however, seems conclusive.

A rather comprehensive study by Nehring and Schramm [16] did not show any effect of nitrogen fertilization on the biologic value of the protein of different barleys for growing swine. The report by Kendall and others [17] of the superiority of a calcium fertilized ration for lactation in rabbits reveals that this ration had a considerably higher protein content. Whether the increase was a direct effect of liming or due to a change in botanical composition is not shown. A recent brief report by Sheldon and his colleagues [18] from Dr. Albrecht's laboratory at the University of Missouri presents data from which it is concluded that wide variations in the concentration of amino acids in forage can result from differences in soil type and treatment. The authors feel that these data suggest an important relationship between soil fertility and the quality of the protein consumed by animals and man. In the light of the experience in the Cornell laboratory of biochemistry in over two thousand amino acid assays on various feeds, most of the differences revealed in the Missouri data seem of doubtful significance. The article does, however, indicate an important field for further study.

EXPERIMENTS ON ANIMALS AS MEASURES OF THE ROLE OF THE SOIL IN NUTRITION AND HEALTH

The discussion thus far has dealt with nutritive value as measured by chemical analysis or microbiologic assay for specific nutrients. In no experiment with a given crop have all the known nutritive qualities been considered. Further, it is probable that there are nutritional essentials as yet unidentified and that natural foods may vary in nutritive values in ways discoverable only by dietary experiments. Accordingly, several investigators have set up experiments to test the over-all effect of treatments of the soil on the growth, health and productivity of farm animals. While several short term studies have been reported, reliable answers can be expected only from comprehensive, long term experiments.

Webb and others [19] have reported a three year experiment with sheep reared on forage produced on eroded soil of low natural fertility. While fertilization with lime and phosphate resulted in increased animal growth per unit of land, it did not result in any superiority of the mineral nutrition of the animals or of reproductive performance. Duncan and his coworkers [20] have issued a preliminary report on the results of a four year experiment in which dairy cattle fed rations from fields of high or low levels of fertility have thus far revealed no differences in production, reproduction or general health.

---

12. Reder, R.; Ascham, L., and Eheart, M. S.: Effect of Fertilizer and Environment on the Ascorbic Acid Content of Turnip Greens, J. Agr. Res. **66**: 375, 1943.
13. Speirs, M.; Cochran, H. L.; Peterson, W. J.; Sherwood, F. W., and Weaver, J. G.: The Effects of Fertilizer Treatments, Curing, Storage, and Cooking on the Carotene and Ascorbic Acid Content of Sweet Potatoes, South. Coop. Ser. Bull. no. 3, Georgia and North Carolina Agricultural Experiment Stations, 1945.
14. Karikka, K. J.; Dudgeon, L. T., and Hauck, H. M.: Influence of Variety, Location, Fertilizer, and Storage on the Ascorbic Acid Content of Potatoes Grown in New York State, J. Agr. Res. **68**: 49, 1944.
15. Kingsley, A. F.; Davis, R. L.; Tisdale, S. L., and Mertz, E. T.: Unpublished data (Purdue University).
16. Nehring, K., and Schramm, W.: Ueber die biologische Wertigkeit des Eiweisses verschiedener Gerstensorten bei wachsenden Schweinen und ihre Beeinflussung durch Stickstoffdüngung, Tierernährung **12**: 478, 1940.
17. Kendall, K. A.; Nevens, W. B., and Overman, O. R.: The Lactation Response as Limited by Feeds Produced Under Two Systems of Soil Fertilization, J. Nutrition **36**: 625, 1948.
18. Sheldon, V. L.; Blue, W. G., and Albrecht, W. A.: Diversity of Amino Acids in Legumes According to the Soil Fertility, Science **108**: 426, 1948.
19. Webb, R. J.; Lewis, J. M.; Kammlade, W. G.; Fuelleman, R. F., and Hamilton, T. S.: The Level of Soil Fertility and Its Relation to Plant and Animal Production, J. Animal Sc. **7**: 159, 1948.
20. Duncan, C. W.; Dunn, K. M.; Ely, R. E.; Dexter, S. T., and Millar, C. E.: Preliminary Report on the Influence of Soil Fertility on the Health Reproduction and Milk Production of Dairy Cows, J. Dairy Sc. **32**: 716, 1949.

UNIVERSITY OF MICHIGAN LIBRARIES

Since 1945 the United States Plant, Soil and Nutrition Laboratory and North Carolina State College have been cooperating in a study of the effect of phosphorus fertilization on the nutritive value for sheep of feeds grown on a phosphorus-deficient soil. The results of the first two years as reported by Matrone and others [21] revealed no differences in proximate composition or in calcium and phosphorus content of the forage as the result of the fertilization and no differences in over-all nutritive value as measured by the growth of lambs. In the third year of the study [22] the fertilization increased significantly the protein, phosphorus and calcium content of the forage, resulting in differences in nutritive value detectable by animal experiments. This investigation, which is being continued, illustrates the necessity of long-term, carefully controlled experiments. Many experiments will be needed to settle the broad questions at issue. Should it be possible to design and carry out such an experiment on segments of the human population, it would be worth while to do so.

SUMMARY

Many peoples of the world are seriously undernourished because the productivity of the land available is not sufficient to supply the total amount of food needed. Soils of low fertility limit the kinds as well as the amounts of crops available for direct human consumption, notably the nutritionally superior vegetables and fruits. Such soils, frequently because of deficiencies of specific minerals necessary for animal growth, also limit the extent of the animal industry, the products of which are so important for optimum nutrition. In these respects the conservation and improvement of the soil can contribute to better nutrition and health.

On the other hand, the thesis that fertility of the soil influences the nutritional quality of specific food crops and animal products in such a way as to have an important effect on human health remains to be established. With the exception of the long-recognized case of iodine, none of the reports which have suggested correlations between soil deficiencies in specific areas and human health has been based on sufficiently critical studies or observations to prove any direct relationship. The more reliable data bearing on this postulated relationship have come from studies of the effects of soil factors on the nutritional content of specific food crops and products. The nutritive value of the animal products which contribute so greatly to the kind of diet required for health is not influenced significantly by factors traceable to the soil. Foods of plant origin vary in mineral content according to the soil in which they are grown, but the health implications of this fact, in terms of the minerals now recognized as likely to be deficient so far as human needs are concerned, remain uncertain. The vitamin content of foods of plant origin is influenced markedly by varietal and climatic factors but not significantly by the fertility level of the soil, according to present findings. Some preliminary reports suggest an influence of soil factors on the amino acid make-up of plant proteins, indicating a field which deserves further study.

The present status of knowledge in this general field calls, on the one hand, for the curtailment of enthusiasms based on inadequate data or on speculations as to a direct bearing of soil fertility on health and, on the other hand, for carefully controlled long-term studies of what relationships actually exist. Though the results to date may not seem promising in terms of practical applications, the questions at issue are so important in terms of human welfare as to justify a large expansion of the investigations now in progress. Until all the facts are learned, no one can predict how significant the final results will be.

21. Matrone, G.; Lovvorn, R. L.; Peterson, W. J.; Smith, F. H., and Weybrew, J. A.: Studies of the Effect of Phosphate Fertilization on the Composition and Nutritive Value of Certain Forages for Sheep, J. Animal Sc. 8:41, 1949.

22. Unpublished information supplied by K. C. Beeson, Director of the United States Plant, Soil and Nutrition Laboratory.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, *Secretary.*

JONES MULTI-MOTOR-BASAL METABOLISM APPARATUS ACCEPTED

Manufacturer: Jones Metabolism Equipment Company, 315-323 South Honore Street, Chicago 12.

The Jones Multi-Motor-Basal Metabolism Apparatus is essentially a recording spirometer using a bellows instead of the conventional counterpoised bell and designed to measure the time required for the subject to consume exactly 1 liter of oxygen. The oxygen is measured by admitting it from a tank into a reservoir of fixed volume at a pressure determined by an aneroid manometer. Novel features of the apparatus are its two-size bellows (one inside the other) and its two-speed recording mechanism. These are believed to be conveniences when the subjects to be tested include both children and adults. A motor-blower circulates the contained oxygen-air mixture; it requires either alternating or direct current. The recording mechanism is likewise electrically driven. The entire apparatus moves on casters. It can be operated from either side.

Jones Multi-Motor-Basal Metabolism Apparatus

The apparatus is provided with the following accessories: (1) electric cord for clock and motor-blower, (2) mechanical calculator or slide rule for computations, (3) double ruler for verifying parellelism of lines and marking slopes, (4) two rubber mouth pieces, (5) adjustable nose piece, (6) two breathing tubes 60 cm. (2 feet) in length, (7) breathing-tube support arm with swivel head; (8) rubber mouth piece elbow for connecting tubes to mouth piece, (9) 300 liter (80 gallon) oxygen tank, (10) tank cup and supports, (11) package of 100 individual tracing sheets, (12) charge of basalime® within container of breathing chamber, (13) wrench for opening and closing oxygen tank, (14) supply of special motor oil, (15) ink in bottle with dropper, (16) rubber motor cushion and gaskets for oxygen tank and (17) set of instructions.

The dimensions and weights are as follows:

Height	125 cm.	(49 in.)
Width	46 cm.	(18 in.)
Depth	38 cm.	(15 in.)
Weight*	44 Kg.	(98 lb.)
Shipping weight	63 Kg.	(140 lb.)

*With oxygen tank.

Evidence was obtained from a source acceptable to the Council that the apparatus performed as represented by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Jones Multi-Motor-Basal Metabolism Apparatus in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

POISON IVY-POISON OAK EXTRACT COMBINED (See New and Nonofficial Remedies 1949, page 18).

The following dosage form has been accepted:

HOLLISTER-STIER LABORATORIES, SPOKANE 8, WASH.

Poison Oak-Ivy Extract: Packages of five doses, each containing 0.2 cc. of extract. The five individual doses prepared in graduated strengths from a concentrate containing 5 mg. in each cc. of sterile sodium chloride solution as a diluent.

Ten grams of mature leaves of Rhus toxicodendron and 10 Gm. of mature leaves of Rhus deversiloba dried and pulverized are separately extracted in 10 cc. of absolute ethyl alcohol. The extract is decolorized, sterilized by Seitz filtration and equal parts of each extract combined. Dilutions to proper strength are prepared with sterile absolute alcohol.

PERTUSSIS VACCINE ALUMINUM HYDROXIDE ADSORBED.—Aluminum hydroxide adsorbed pertussis vaccine is a sterile suspension in a suitable diluent of killed pertussis bacilli (*Hemophilus pertussis*) of a strain or strains selected for high antigenic efficiency and adsorbed on aluminum hydroxide. The vaccine contains in each cubic centimeter at least 10,000 million pertussis organisms. Aluminum hydroxide adsorbed pertussis vaccine complies with the official potency test and other requirements of the National Institutes of Health of the United States Public Health Service.

Actions and Uses.—(See monograph on Pertussis Vaccine.) Because of the physical character of the aluminum hydroxide adsorbed product, absorption is delayed.

Dosage.—Hypodermic, for active immunization, a total of not less than 30,000 million bacteria divided into not less than three individual injections, with intervals of four to six weeks between injections.

CUTTER LABORATORIES, BERKELEY 1, CALIF.

Pertussis Vaccine, Aluminum Hydroxide Adsorbed (Alhydrox): 7.5 cc. vials: Each cc. contains 30,000 million *H. pertussis.* Preserved with thimerosal 1:10,000.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA TOXOID (See New and Nonofficial Remedies 1949, page 507).

The following dosage form has been accepted:

CUTTER LABORATORIES, BERKELEY 1, CALIF.

Diphtheria Toxoid and Pertussis Vaccine Combined (Diptussis): 1.5 cc. and 7.5 cc. vials: Each cc. contains 50,000 million *H. pertussis* bacteria. Preserved with thimerosal 1:10,000.

DIPHTHERIA TOXOID AND PERTUSSIS VACCINE COMBINED, ALUMINUM HYDROXIDE ADSORBED.—Diphtheria toxoid and pertussis vaccine combined, aluminum hydroxide adsorbed is a sterile mixture of diphtheria toxoid and pertussis vaccine, adsorbed on aluminum hydroxide and combined in such proportion as to yield a mixture containing an immunizing dose of each in the total dosage prescribed on the label. Diphtheria toxoid and pertussis vaccine combined, aluminum hydroxide adsorbed complies with the official potency tests and other requirements of the National Institutes of Health of the United States Public Health Service.

Actions and Uses.—(See monograph on Diphtheria Toxoid and Pertussis Vaccine Combined.) Because of the physical character of the aluminum hydroxide adsorbed product, absorption is delayed.

Dosage.—Hypodermic, for active immunization, not less than three repeated injections representing the U. S. P. dosage for diphtheria toxoid, aluminum hydroxide adsorbed and for pertussis vaccine, aluminum hydroxide adsorbed.

CUTTER LABORATORIES, BERKELEY 1, CALIF.

Diphtheria Toxoid and Pertussis Vaccine Combined, Aluminum Hydroxide Adsorbed, (Diptussis, Alhydrox): 1.5 cc. and 7.5 cc. vials: Each cc. contains 30,000 million *H. pertussis* bacteria. Preserved with thimerosal 1:10,000.

MEPERIDINE HYDROCHLORIDE (See New and Nonofficial Remedies 1949, page 31).

The following dosage form has been accepted:

WINTHROP-STEARNS, INC., NEW YORK

Solution Demerol Hydrochloride: 2 cc. Ampins: A solution containing 50 mg. of meperidine hydrochloride in each cc.

U. S. Patent 2,167,351; U. S. Trademark 281,130.

DIPHTHERIA AND TETANUS TOXOIDS WITH PERTUSSIS VACCINE COMBINED, ALUMINUM HYDROXIDE ADSORBED.—Diphtheria and tetanus toxoids with pertussis vaccine combined, aluminum hydroxide adsorbed is a sterile mixture of diphtheria toxoid, tetanus toxoid and pertussis vaccine adsorbed on aluminum hydroxide and combined in such proportion as to yield a mixture containing an immunizing dose of each in the total dosage prescribed on the label. Diphtheria and tetanus toxoids with pertussis vaccine, combined, aluminum hydroxide adsorbed complies with the official potency tests and other requirements of the National Institutes of Health of the United States Public Health Service.

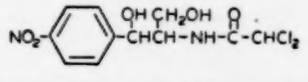
Actions and Uses.—(See monograph on Diphtheria and Tetanus Toxoids with Pertussis Vaccine Combined.) Because of the physical character of the aluminum hydroxide adsorbed product, absorption is delayed.

Dosage.—Hypodermic, for active immunization, not less than three repeated injections representing the dosage of diphtheria toxoid, aluminum hydroxide adsorbed, of tetanus toxoid, aluminum hydroxide adsorbed and of pertussis vaccine, aluminum hydroxide adsorbed.

CUTTER LABORATORIES, BERKELEY 1, CALIF.

Diphtheria and Tetanus Toxoids and Pertussis Vaccine Combined, Aluminum Hydroxide Adsorbed (Dip-Pert-Tet Alhydrox): 1.5 cc. and 7.5 cc. vials: Each cc. contains 30,000 million *H. pertussis* organisms. Preserved with thimerosal 1:10,000.

CHLORAMPHENICOL.—Chloromycetin (PARKE, DAVIS).—D-(-)-Threo-1-(*p*-nitrophenyl)-2-dichloroacetamido-1, 3-propanediol.—$C_{11}H_{12}Cl_2N_2O_5$.—M.W. 323.14.—The structural formula of chloramphenicol may be represented as follows:



Actions and Uses.—Chloramphenicol is an antibiotic derived from Streptomyces venezuelae or produced synthetically. It is effective against certain gram-negative organisms and against Rickettsia.

It has been found clinically effective in the treatment of epidemic typhus, scrub typhus and Rocky Mountain spotted fever. It is effective in typhoid but does not eradicate the carrier state. It is also effective in acute brucellosis, bacteremic infections produced by Escherichia coli or Aerobacter aerogenes and in the control of urinary tract infections due to E. coli, A. aerogenes, P. vulgaris or mixtures of these organisms. Chloramphenicol is also of value in the treatment of granuloma inguinale and atypical pneumonia.

Although the drug affects gram-positive organisms and gonococci in vitro, its use in clinical infections due to these organisms has not been studied sufficiently to establish its usefulness.

The drug is rapidly absorbed from the gastrointestinal tract and appears promptly in the blood stream after a single oral dose. It is excreted in the urine in high concentration, about 10 per cent being in the active form. The concentration in the spinal fluid is about half of that in the blood.

Large doses of chloramphemicol may produce nausea and vomiting. Other toxic effects have not been observed.

Dosage.—Initial oral doses of 50 to 75 mg. per kilogram of body weight are usually employed. Thereafter a dose of 0.25 Gm. every two to three hours may be given. In severe infections, this dose may be increased to 0.5 Gm. every three hours. The drug should be continued until the temperature is normal and the symptoms have subsided; it may then be given less frequently. In most infections, if the temperature remains normal the drug can be discontinued after 48 hours.

UNIVERSITY OF MICHIGAN LIBRARIES

Tests and Standards.—

Physical Properties: Chloramphenicol is a white to grayish white or yellowish white, crystalline powder, or it forms needles or elongated plates. It is slightly soluble in water and freely soluble in alcohol. Saturated aqueous solutions have a p_H between 4.5 and 7.5. Chloramphenicol is levorotatory in ethyl acetate, but is dextrorotatory in alcohol. A solution of 1.25 Gm. of chloramphenicol in 15 ml. of absolute alcohol has a specific rotation, $a(25,D)$, of $+18.5° \pm 1.5°$. The extinction coefficient, E(1%, 1 cm.), of chloramphenicol at 2780 A is 298 ± 9.

Identity Tests: Dissolve about 1 mg. of chloramphenicol in 1,000 ml. of water and to about 5 ml. of the solution add a few drops of silver nitrate T.S.: no precipitate forms (*absence of inorganic halides*). Heat about 50 mg. of chloramphenicol and 2 ml. of alcoholic potassium hydroxide T.S. on a steam bath for 15 minutes. Acidify the solution with diluted nitric acid and add a few drops of silver nitrate T.S.: a white precipitate forms which is soluble in diluted ammonia solution (*presence of organic chlorine*).

Dissolve about 0.3 Gm. of chloramphenicol in 3 ml. of alcohol and add 10 drops of hydrochloric acid. Then add about 1 Gm. of granulated tin and warm the mixture on a steam bath. After 10 minutes evaporate the mixture to dryness and add 10 ml. of water. Decant the clear solution, add 1 ml. of hydrochloric acid, chill and add 1 Gm. of sodium nitrite in a few ml. of water. After 5 minutes, add a few crystals of sulfamic acid until the solution gives a negative test on starch-iodide paper. Add this solution to a solution of about 0.5 Gm. of β-naphthol in 10 ml. of sodium hydroxide T.S.: a brilliant orange precipitate forms (*presence of nitrophenyl group*).

Purity Tests: To the residue obtained in determining the residue on ignition (see below) add 1 ml. of diluted hydrochloric acid and evaporate on a steam bath. Dissolve the residue in 1 ml. of acetic acid by heating gently. Transfer the solution to a 50 ml. Nessler tube by rinsing the dish with enough water to give 20 ml. of solution. Determine the heavy metals content by the method of *U. S. P. XIII*, page 657. The amount of heavy metals present is equivalent to not more than 25 ppm. of lead.

Assay: With warming, dissolve exactly 20 mg. of chloramphenicol in 100 ml. of water. Cool to room temperature, transfer quantitatively to a 1,000 ml. volumetric flask, make up to the mark with water and mix. Determine the optical density of the solution spectrophotometrically at 2780 A compared with water as a blank. The extinction coefficient, E(1%, 1 cm), is 298. The amount of chloramphenicol present is not less than 97 nor more than 103 per cent as received.

CHLORAMPHENICOL CAPSULES:

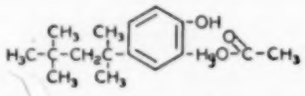
Identity Tests: The contents of the capsules respond to the identity tests given in the monograph for Chloramphenicol.

Assay: Determine the average weight of 10 capsules. Place the equivalent of about 1 Gm. of chloramphenicol, accurately weighed, in 250 ml. of water, warm to hasten solution and determine the extinction coefficient at 2780 A. The amount of chloramphenicol present is not less than 90 nor more than 110 per cent of the labeled amount.

PARKE, DAVIS & COMPANY, DETROIT 32

Kapseals Chloromycetin: 0.25 Gm.

ACETOMEROCTOL.—Merbak (SCHIEFFELIN).—2-(Acetoxymercuri)-4-(1,1,3,3-tetramethylbutyl)phenol. — $C_{18}H_{28}HgO_3$.—M.W. 464.96.—The structural formula of acetomeroctol may be represented as follows:



Actions and Uses.—Acetomeroctol, an organomercurial, is employed as a topical antiseptic for the prevention and control of superficial infection. It is subject to the same limitations of usefulness as other organic mercurial antiseptics. The alcohol-acetone solution accounts for a significant part of the antibacterial action of the preparation. These components may produce irritation when used on mucous membranes or extensive superficial wounds.

Dosage.—Acetomeroctol is applied locally in 1:1,000 solution containing 50 per cent alcohol and 10 per cent acetone.

Tests and Standards.—

Physical Properties: Acetomeroctol occurs as a white solid which melts between 155 and 157 C. It is practically insoluble in water, freely soluble in alcohol, soluble in ether and chloroform and sparingly soluble in benzene.

Identity Tests: Dissolve approximately 0.2 Gm. of acetomeroctol in 3 to 5 ml. of chloroform. Dissolve 0.1 Gm. of iodine in 3 ml. of chloroform. Add the iodine solution to the acetomeroctol solution in small amounts. The iodine color is discharged immediately; a momentary green color is produced which disappears immediately and yellow mercuric salts precipitate.

Purity tests: To 0.1 Gm of acetomeroctol in a test tube add 5 ml. of water. Shake vigorously and filter. Add 2 drops of sodium sulfide T.S. to the filtrate: no color or precipitate forms (*mercuric ion*).

Dry about 1 Gm. of acetomeroctol, accurately weighed, in a vacuum over anhydrous calcium sulfate for 24 hours: the loss in weight does not exceed 0.75 per cent.

Assay: Accurately weigh about 0.1 Gm. of acetomeroctol (dried in a vacuum for at least 24 hours) into a 15 ml. centrifuge tube. Add about 5 ml. of redistilled monoethanolamine. Place a water-cooled reflux condenser over the mouth of the tube and heat the tube in an oil bath to about 180 C. Allow the tube to remain at this temperature for 30 minutes. (The solution turns dark brown and soon a globule of mercury can be seen at the apex of the tube.) Remove the bath and allow the tube to cool. Rinse the condenser with two 1 ml. portions of alcohol and add the washings to the tube. Centrifuge the tube for 5 minutes at 2,800 r.p.m. Siphon off the ethanolamine without disturbing the mercury, and repeat the washing and siphoning three times with alcohol and three times with distilled water. Add 5 ml. of nitric acid to insure complete solution of the mercury globule. Add 1 or 2 ml. of water and swirl to effect mixing. Chill the solution by immersion in ice-water and add several drops of 1 per cent potassium permanganate until the pink color persists for 1 minute. Then carefully decolorize the solution by adding 0.5 per cent hydrogen peroxide until the color just disappears. Add 1 ml. of 1 per cent ferric ammonium sulfate and, with stirring, titrate with 0.1 *N* potassium thiocyanate to the salmon pink end point. (The titration must be done below 25 C.) Each ml. of 0.1 *N* potassium thiocyanate is equivalent to 0.01000 Gm. of mercury: the mercury content is not less than 43.0 nor more than 43.2 per cent on a dry basis.

ACETOMEROCTOL TINCTURE: Place 100 ml. of acetomeroctol tincture in a 250 ml. beaker and add 10 ml. of hydrochloric acid. Warm the clear solution on a steam bath for 30 minutes and then saturate with hydrogen sulfide. Allow the precipitated mercuric sulfide to settle and filter through a tared Gooch crucible. Wash the precipitate successively with water, alcohol, ether, carbon disulfied and ether. Dry at 105 C. for 1 hour and weigh. Each gram of mercuric sulfide is equivalent to 2.001 Gm. of acetomeroctol: the acetomeroctol content is not less than 90 nor more than 110 per cent of the claimed amount.

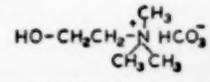
SCHIEFFELIN & COMPANY, NEW YORK 3

Tincture Merbak 1:1,000 (Colored): 30 cc., 118 cc., 473 cc. and 3.78 liter bottles. A solution of 50 per cent alcohol and 10 per cent acetone containing 0.1 Gm. acetomeroctol in each cc.

Tincture Merbak 1:1,000 (Stainless): 118 cc., 473 cc. and 3.78 liter bottles: A solution of 50 per cent alcohol and 10 per cent acetone containing 0.1 Gm. acetomeroctol in each cc.

U. S. patent 2,415,754.

CHOLINE BICARBONATE.—(2-Hydroxyethyl)trimethylammonium bicarbonate.—$C_5H_{14}NO.HCO_3$.—M.W. 165.19.—An aqueous solution containing 17 per cent of choline bicarbonate. The structural formula of choline bicarbonate may be represented as follows:



Choline bicarbonate solution is prepared by passing carbon dioxide through a solution of choline base until the p_H of the reaction mixture is 9.0 or lower, the mixture is concentrated and again treated with carbon dioxide to a p_H of 8.5 to 8.9.

Actions and Uses.—Choline bicarbonate shares the lipotropic action and uses of other choline salts and is recognized for clinical trial as an adjunct in the treatment of fatty infiltration and cirrhosis of the liver. See monograph on Choline Dihydrogen Citrate.

Dosage.—Although the precise dosage for this and other choline salts has not yet been established, the recommended dosage of choline bicarbonate is divided oral doses providing 8 Gm. (equivalent to 6.6 Gm. choline base) or more daily. It is available in the form of a syrup which should be given after meals, preferably mixed with half a glass of water.

Tests and Standards.—

Physical Properties: Choline bicarbonate, isolated by vacuum evaporation of the solution, is an extremely hygroscopic white solid with a strong amine-like odor. It is very soluble in water, freely soluble in alcohol, very slightly soluble in benzene and practically insoluble in chloroform and ether. The p_H of a 10 per cent aqueous solution is about 8.5.

Identity Tests: To 0.5 Gm. of choline bicarbonate dissolved in 2 ml. of water add a few drops of phosphotungstic acid T.S.: a white curdy precipitate forms immediately.

Add 1 ml. of a 1 per cent solution of choline bicarbonate to 2 ml. of cobaltous chloride solution (U.S.P. test solution diluted 1:25). Add 2 ml. of 2 per cent potassium ferrocyanide solution: an emerald-green color develops immediately.

To 0.3 Gm. of choline bicarbonate dissolved in 2 ml. of water, slowly add a few drops of hydrochloric acid. Pass the evolved gas into barium hydroxide T.S.: a white precipitate is formed.

Purity Tests: To 0.5 Gm. of choline bicarbonate dissolved in 20 ml. of water, slowly add 5 ml. of diluted hydrochloric acid. When the reaction subsides, heat the solution gently for 5 minutes, cool and dilute to 50 ml. with distilled water. Saturate the solution with hydrogen sulfide gas: no color or precipitate results.

Accurately weigh about 1 Gm. of choline bicarbonate in a tared, covered porcelain crucible and ash: the residue does not exceed 0.05 per cent.

Assay: Accurately weigh about 0.2 Gm. of choline chloride, U.S.P. Reference Standard, into a 100 ml. volumetric flask and make up to the mark with water. Transfer 8, 6, 5 and 4 ml. portions of the solution to separate test tubes, to each tube add 5 ml. of a freshly prepared and filtered saturated solution of ammonium reineckate (about 0.15 Gm.: 5 ml.), shake and allow to stand for 20 minutes. Filter the mixtures with suction, collecting the precipitates in fritted glass funnels. Wash the precipitates with 5 ml. portions of ice-cold water until the filtrates are colorless and then with two 2 ml. portions of ice-cold absolute alcohol. Continue drawing air through the filter funnels until the precipitates are dry. Place test tubes under the stems of the funnels in the suction flasks and, with the aid of suction, wash the precipitates into the test tubes with three 5 ml. portions of acetone. Transfer the filtrates to 50 ml. volumetric flasks, rinse the test tubes with acetone, make up the solutions to 50 ml. with acetone and shake. Measure the light absorption at 5260 A with a spectrophotometer, using acetone as a blank. Plot absorptions versus concentrations to give a standard curve.

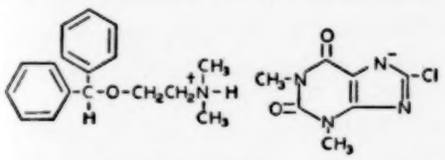
In a closed weighing bottle accurately weigh about 0.1 Gm. of choline bicarbonate. Transfer the material to a 100 ml. volumetric flask and dilute to the mark with water. Transfer 10 ml. of the solution to a test tube, add 5 ml. of freshly prepared, filtered, saturated ammonium reineckate solution and proceed as before. Read the concentration of choline chloride from the standard curve. One Gm. of choline chloride is equivalent to 1.1830 Gm. of choline bicarbonate: the choline bicarbonate content is not less than 98 nor more than 105 per cent.

CHOLINE BICARBONATE SYRUP: From 5 ml. of the choline bicarbonate syrup prepare an aqueous solution with a final concentration of about 0.001 Gm. per ml. Transfer 10 ml. of this solution to a test tube and proceed with the spectrophotometric determination described in the monograph for Choline Bicarbonate, beginning with ". . . add 5 ml. of a freshly prepared and filtered saturated solution of ammonium reineckate (about 0.15 Gm.: 5 ml.), shake and allow to stand for 20 minutes." One Gm. of choline chloride is equivalent to 0.8678 Gm. of choline. The content of choline base is not less than 95 nor more than 105 per cent of the claimed amount.

COMMERCIAL SOLVENTS CORP., NEW YORK 17

Syrup Choline Bicarbonate 17%: 475 cc. bottles: An aqueous solution containing 170 mg. of choline bicarbonate in each cc.

DIMENHYDRINATE.—Dramamine (SEARLE).—2-(Benzohydryloxy)-N,N-dimethylethylamine 8-chlorotheophyllinate.—$C_{17}H_{21}NO.C_7H_8ClN_4O_2$.—N.W. 469.96.—The structural formula of dimenhydrinate may be represented as follows:



Actions and Uses.—Dimenhydrinate is closely related to diphenhydramine and also exhibits antihistaminic properties. It exerts a temporary therapeutic and prophylactic action in motion sickness. The mechanism of this action is not yet fully understood.

A high percentage of cases of seasickness and carsickness can be aborted or prevented by suitable doses of dimenhydrinate. Favorable effects in the prevention or treatment of airsickness are less frequent than with other forms of motion sickness, but it would appear that this drug is so far the best available remedy despite its lack of effectiveness in some cases.

The untoward effects of dimenhydrinate therapy are qualitatively similar to those of diphenhydramine, drowsiness being frequently observed.

Dosage.—The advised dosage of dimenhydrinate is 50 mg. to 100 mg. one-half hour before departure, repeated before meals and on retiring. Not more than 400 mg. should be given in any 24 hour period.

Tests and Standards.—

Physical Properties: Dimenhydrinate is a crystalline, white odorless powder which melts between 102 and 107 C. It is freely soluble in alcohol and chloroform, soluble in benzene, sparingly soluble in ether, and slightly soluble in water. The *ph* of a saturated solution is between 6.8 and 7.3.

Identity Tests: Dissolve about 0.5 Gm. of dimenhydrinate in 30 ml. of water and divide the solution into two portions. To one portion add 2 ml. of strong ammonia solution and extract the free base with two 10 ml. portions of ether. Wash the combined ether extracts with 5 ml. of water, then add 1 ml. of hydrochloric acid to the ether solution, mix the liquids and warm the container on a steam bath to expel the ether and most of the water. The residue responds to the identity tests in the monograph for Dimenhydrinate Hydrochloride.

To the second 15 ml. portion of dimenhydrinate solution, add 1 ml. of diluted sulfuric acid and cool for 30 minutes: a fine, white precipitate separates. Filter the mixture, wash the precipitate with a little water and dry the solid on a porous plate. The 8-chlorotheophylline formed melts between 300 and 305 C. with decomposition. It responds to the murexide test, *U.S.P. XIII*, p. 566, par. A (*test for purines*). Fuse about 50 mg. of the 8-chlorotheophylline with 0.5 Gm. of sodium peroxide in a nickel crucible. Dissolve the melt in 20 ml. of water, acidify with diluted nitric acid and add 1 ml. of silver nitrate T.S.: a curdy, white precipitate forms (*presence of halides; distinction from theophylline*). Suspend 0.2 Gm. of 8-chlorotheophylline in 5 ml. of water and add just enough ammonia T.S. to effect solution. Add a few drops of silver nitrate T.S. and warm slightly: a white precipitate of silver 8-chlorotheophylline develops.

Purity Tests: Dry about 1 Gm. of dimenhydrinate, accurately weighed, in a vacuum over phosphorus pentoxide at room temperature for 24 hours: the loss in weight is not more than 0.1 per cent.

Char about 1 Gm. of dimenhydrinate, accurately weighed. Cool, add a few drops of sulfuric acid to the charred mass and ignite: the amount of residue is not more than 0.1 per cent.

Assay: (Diphenhydramine) Accurately weigh about 0.8 Gm. of dimenhydrinate and place it in a 250 ml. separatory funnel. Add 50 ml. of water, 3 ml. of 5 *N* ammonium hydroxide and 10 Gm. of sodium chloride, and extract with three 50 ml. portions of ether. Combine the ether extracts in a separatory funnel and wash them three times with 50 ml. portions of water. Add exactly 25 ml. of 0.1 *N* hydrochloric acid to the ether layer and then 50 ml. of water. Thoroughly mix the two phases and allow them to separate. Quantitatively remove the aqueous layer to a 300 ml. conical flask. Rinse the ether layer with 50 ml. of water and add the rinsings to the flask. Titrate the excess acid in the aqueous extract with 0.1 *N* sodium hydroxide, using methyl red T.S. as the indicator. Each ml. of 0.1 *N* hydrochloric acid combined with the diphenhydramine is equivalent to 0.02554 Gm. of diphenhydramine: the diphenhydramine content is not less than 53.0 nor more than 55.3 per cent.

(8-Chlorotheophylline) Accurately weigh about 0.8 Gm. of dimenhydrinate and transfer it to a 200 ml. volumetric flask. Add 50 ml. of water, 3 ml. of 5 *N* ammonium hydroxide and 6 ml. of 10 per cent ammonium nitrate. Warm on a steam bath for 5 minutes and then slowly add with stirring exactly 25 ml. of 0.1 *N* silver nitrate. Swirl the flask to mix the contents and warm it on a steam bath for 15 minutes. Cool to 25 C., make up to volume, mix thoroughly and centrifuge at 2000 rpm. for 5 minutes or allow the flask to stand overnight. Filter the mixture through a dry filter paper, discarding the first 20 ml. Pipet exactly 100 ml. of the filtrate into a 250 ml. flask and acidify with 10 ml. of 5 *N* nitric acid. Add 2 ml. of ferric ammonium sulfate T.S. as indicator and titrate the excess silver with 0.1 *N* ammonium thiocyanate. Multiply the volume of thiocyanate required by 2 and subtract the value obtained from 25 ml. to get the net titration equivalent to the silver precipitated as silver 8-chlorotheophyllinate. Each ml. of 0.1 *N* silver nitrate consumed is equivalent to 0.02146 Gm. of 8-chlorotheophylline. The amount of 8-chlorotheophylline present is not less than 44.0 nor more than 47.0 per cent.

DIMENHYDRINATE TABLETS: *Identity Tests:* Grind 5 tablets to a fine powder and extract it with 25 ml. of warm alcohol. Filter the mixture through a small filter paper and collect 20 ml. of the filtrate. Divide the filtrate, add 10 ml. of water to each portion and proceed with the identity tests given in the monograph for Dimenhydrinate starting with, "To one portion add 2 ml. of strong ammonia solution . . ."

Assay: Accurately weigh 20 tablets, calculate their average weight and grind them. Transfer a sample of the powder, accurately weighed, equivalent to 0.8 Gm. of dimenhydrinate to a 200 ml. volumetric flask. Continue as directed in the assay for 8-chlorotheophylline in the monograph for Dimenhydrinate beginning with, "Add 50 ml. of water . . ." Each ml. of 0.1 *N* silver nitrate consumed is equivalent to 0.04700 Gm. of dimenhydrinate. The amount of dimenhydrinate present is not less than 95 nor more than 105 per cent of the labeled amount.

G. D. SEARLE & CO., CHICAGO 80

Tablets Dramamine: 50 mg.

AMINOPHYLLINE (See New and Nonofficial Remedies 1949, page 322).

The following dosage form has been accepted:

SHERMAN LABORATORIES, DETROIT

Solution Aminophylline: 2 cc. ampuls: A solution containing 0.25 Gm. of aminophylline in each cc.; 10 cc. ampuls: A solution containing 26 mg. of aminophylline in each cc.

BENZYL BENZOATE (See New and Nonofficial Remedies 1949, page 122).

The following dosage forms have been accepted:

THE BLUE LINE CHEMICAL COMPANY, ST. LOUIS

Lotion Benzyl Benzoate: 473 cc. and 3.78 liter bottles: An oil in water emulsion containing 28 per cent v/v of benzyl benzoate, 0.5 per cent triethanolamine and 2 per cent oleic acid.

VELTEX COMPANY, BIRMINGHAM, ALA.

Emulsion Venzoate: 450 cc. and 3.84 liter bottles: An oil in water emulsion containing 25 per cent v/v of benzyl benzoate, 0.5 per cent triethanolamine and 2 per cent oleic acid.

CHLORGUANIDE HYDROCHLORIDE (See New and Nonofficial Remedies 1949, page 163).

The following dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Tablets Chlorguanide Hydrochloride: 115 mg.

CHOLINE DIHYDROGEN CITRATE (See New and Nonofficial Remedies 1949, page 425).

The following dosage form has been accepted:

U. S. VITAMIN CORPORATION, NEW YORK

Capsules Choline Dihydrogen Citrate: 0.5 Gm.

DIENESTROL (See New and Nonofficial Remedies 1949, page 374).

The following dosage form has been accepted:

THE BIO-RAMO DRUG COMPANY, BALTIMORE

Tablets Dienestrol: 0.1 mg., 0.5 mg. and 1.5 mg.

DIMETHYL-TUBOCURARINE IODIDE (See THE JOURNAL, April 15, 1950, page 1142).

The following dosage form has been accepted:

ELI LILLY AND COMPANY, INDIANAPOLIS

Solution Metubine Iodide: 10 cc. ampuls: A solution containing 1 mg. of dimethyl-tubocurarine iodide in each cc.

UNIVERSITY OF MICHIGAN LIBRARIES

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. - - - CHICAGO 10, ILL.

Edited by
AUSTIN SMITH, M.D.

Associate Editor
JOHNSON F. HAMMOND, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Subscription price - - Twelve dollars per annum in advance
Cable Address - - - - "Medic, Chicago"

SATURDAY, JULY 1, 1950

INCOMPATIBLE ANTIBIOTICS

Clinicians [1] report that combined therapy with penicillin and streptomycin is often successful in patients with enterococcic endocarditis. Such patients usually fail to respond to either drug when given alone, even in high doses over long periods of time. Studies of the combined in vitro action of these two antibiotics against enterococci were therefore undertaken by Jawetz [2] and his associates of the Division of Bacteriology, University of California. Using nine strains of enterococci recently isolated from clinical cases, they tested the bacteriostatic and bactericidal effects of penicillin, streptomycin and chloramphenicol when used separately or in combination.

One typical strain was originally isolated from the blood stream of a patient with subacute bacterial endocarditis. This patient was subsequently cured by combined penicillin-streptomycin therapy. In a control test with no drug present in the enterococci culture, the population increased nearly a hundredfold during the first seven hours. The population was maintained at this level for at least six days. Practically no changes in growth were noted in the presence of 25 micrograms of streptomycin per cubic centimeter. Stabilization of the population at the initial level was noted in the presence of 10 micrograms of chloramphenicol per cubic centimeter. With 6 micrograms of penicillin per cubic centimeter there was a 90 per cent reduction in enterococci during the first 24 hours, with a gradual increase by the end of five days.

A pronounced synergistic effect was noted when streptomycin (itself ineffective) was added to penicillin; all tubes became sterile by the end of 48 hours. A different phenomenon was noted when chloramphenicol (also ineffective) was added to penicillin. Although the rate of bactericidal action was less than with penicillin alone, and the numbers of viable bacteria were not appreciably reduced until the sixth to twelfth day, the chloramphenicol-penicillin mixtures resulted in a slow but steady decrease of the population. Chloramphenicol thus appears to have some antagonistic action on the early bactericidal effects of penicillin on enterococci. No theory is thus far suggested to account for this antibiotic incompatibility.

1. Hunter, T. H.: Am. J. Med. **2**: 436, 1947. Robbins, W. C.: J. Clin. Investigation **28**: 806, 1949. Tompsett, R., and McDermott, W.: Am. J. Med. **7**: 371, 1949.
2. Jawetz, E.; Gunnison, J. B., and Coleman, V. R.: Science **111**: 254 (March 10) 1950.

AGE AND SUSCEPTIBILITY TO INOCULATION OF TUMORS AND LEUKEMIA

Spontaneous leukemia frequently develops in middle-aged mice of the Ak inbred line. When cell suspensions prepared from liver or spleen of such leukemic mice are injected into young, healthy mice of the Ak line, acute leukemia develops in the inoculated animals within two weeks. These cell suspensions will not produce leukemia when inoculated into adult mice of other inbred lines, such as those of the C3H line. L. Gross [1] at the Veterans Administration Hospital, New York, found, however, that, if newborn suckling mice of the C3H line were inoculated with cell suspensions prepared from Ak leukemia, acute leukemia developed in practically all the inoculated animals. This susceptibility of the newly born C3H mice to Ak leukemia is essentially limited to the first few days of their lives and disappears when these mice reach sexual maturity, at 21 days of age.

Similar observations have been made with tumors. Duran-Reynals [2] observed that chicken sarcoma inoculated into 1 to 4 day old ducklings will grow rapidly and kill the hosts, whereas the same tumors inoculated into adult ducks grow only slowly, remain localized or eventually regress.

Resistance to the inoculation of tumor cells apparently develops promptly after birth and increases, reaching its full height with sexual maturity. Before birth the embryo [3] is highly susceptible to the inoculation of cancer cells, even of those from a foreign species. Immediately after birth the infant is more susceptible to inoculation of tumor cells than the adult, but limited resistance is rapidly acquired with age. Adult hosts are in most instances susceptible only to the implantation of tumors that originated in animals of the same inbred line. Only under special experimental conditions can transplantation of tumors that originated in foreign species succeed.

Curiously enough, filtrable tumor agents, in mice and chickens, were also found to attack much more efficiently newborn than adult animals. Mice that do not carry the mammary carcinoma agent could be infected by either the oral or intraperitoneal route, provided that the tumor agent was introduced within the first 10 to 15 days of their lives; attempts to infect female

1. Gross, L.: Susceptibility of Newlyborn Mice of an Otherwise Apparently "Resistant" Strain to Inoculation with Leukemia, Proc. Soc. Exper. Biol. & Med. **73**: 246, 1950.
2. Duran-Reynals, F.: A Study of Three New Duck Variants of the Rous Chicken Sarcoma, Cancer Research **7**: 99, 1947.
3. Murphy, J. B.: Transplantability of Malignant Tumors to the Embryos of a Foreign Species, J. A. M. A. **59**: 874, 1912.

mice more than 30 days old were in most instances unsuccessful, unless massive doses were employed.[4] Similarly, the agent of chicken leukemia could be transmitted to new hosts, provided that newly hatched chicks, preferably in the first day of life, were inoculated.[5]

No satisfactory explanation is yet available of the high susceptibility of newborn animals to inoculation with tumors and leukemia. It should be emphasized that the higher susceptibility of newborn animals, as compared with that of adult hosts, to inoculation with pathogenic agents is not limited to tumors and leukemia. Various neurotropic viruses have also been shown to be substantially more pathogenic for newly born suckling mice than for adult animals.[6]

IRRADIATION PROPHYLAXIS

It is generally assumed that many of the biologic effects of irradiation are due to the action of H_2O_2, OH, O_2H and other decomposition products of water. The prevention or reversal of their action by injection of oxidizing or reducing agents has been tested by numerous investigators. For example, Patt [1] and his associates of the Argonne National Laboratory, Chicago, report success by treatment of preirradiated rats with cysteine.

Male and female rats weighing 150 to 250 Gm. received 800 r total body irradiation in a single exposure. Animals of the same sex were treated in pairs, one serving as control, the other as the treated animal. In the control animals but 27 per cent survived by the end of five weeks. In one group of 41 rats, 350 mg. of cysteine per kilogram of body weight was injected into a tail vein one hour to five minutes before exposure. The survival rate was 89 per cent in this pretreated group. The same dose injected five minutes after exposure was without effect.

Similar tests are reported by Bacq [2] and associates of the Laboratories of General Pathology and Radiology, University of Liége, Belgium. Mice weighing about 30 Gm. received 500 to 600 r. All control mice died between the fourth and eighth day after exposure. Animals receiving 0.1 mg. of sodium cyanide just before irradiation showed 50 to 80 per cent survival. The same dose given 15 minutes after irradiation was ineffective.

Similar failure of postirradiation therapy is reported by Cronkite [3] and associates of the Naval Medical Research Institute, Bethesda, Md., who tested the effect of intramuscular injections of folic acid on postirradiated swine. Smith [4] and his co-workers of the National Institute of Health, Bethesda, Md., report lack of success with repeated injections of cortisone or pituitary adrenocorticotropic hormone in mice after irradiation. Other substances are now being tested.

DEGENERATIVE CHANGES IN CHILDREN WITH DIABETES

The foremost problem in diabetes mellitus in children is the prevention of degenerative changes. The reports [1] on the incidence of degenerative changes in diabetic persons after 15 to 20 years of the disease controlled with regimens generally recommended make these complications appear inevitable. A group [2] from the State University of Iowa has investigated the possibility that a higher level of diabetic control might prevent or delay degenerative changes.

Clinicians do not agree on the level of control which should be attempted in caring for children with diabetes mellitus. The majority of clinicians do not believe that complete control of the disease is practicable. At the State University of Iowa the objective in management of children with diabetes mellitus has been to maintain physiologic conditions so far as possible. In 1940 [3] the group demonstrated that complete control of the disease was possible if the child is treated early and adequately. During the ensuing years, as additional information concerning the disease has accumulated, their management has improved. Special emphasis has been given to the percentage distribution of insulin and to the necessity of variation of food intake to compensate for variations in physical activity. The use of chemotherapeutic and antibiotic agents has made it possible to combat more satisfactorily intercurrent infections, and increased knowledge and better facilities gradually have provided better social and emotional care of patients. The regimen [4] employed by Jackson and co-workers to obtain complete control of the disease consisted of a nutritionally adequate diet and the daily administration of two doses of regular and one dose of globin insulin. The distribution of the daily dose was 35, 22 and 43 per cent. The parents and the child were thoroughly

4. Andervont, H. B.; Shimkin, M. B., and Bryan, W. R.: Technique Suitable for Quantitative Studies on the Mammary Tumor Inciter of Mice, J. Nat. Cancer Inst. **3:** 309, 1942.

5. Waters, N. F., and Bywaters, J. H.: Influence of Age of Chickens at Contact Exposure on Incidence of Lymphomatosis, Poultry Sc. **28:** 254, 1949.

6. Olitsky, P. K.; Sabin, A. B., and Cox, H. R.: Acquired Resistance of Growing Animals to Certain Neurotropic Viruses in the Absence of Humoral Antibodies or Previous Exposure to Infection, J. Exper. Med. **64:** 723, 1936. Dalldorf, G.; Sickles, G. M.; Plager, H., and Gifford, R.: A Virus Recovered from the Feces of "Poliomyelitis" Patients Pathogenic for Suckling Mice, J. Exper. Med. **89:** 567, 1949.

1. Patt, H. M.; Tyree, E. B.; Straube, R. L., and Smith, D. E.: Science **110:** 213 (Aug. 26) 1949.

2. Bacq, Z. M.; Herve, A.; Lecomte, J., and Fischer, P.: Science **111:** 356 (April 7) 1950.

3. Cronkite, E. P.; Tullis, J. L.; Tessmer, C., and Ullrich, F. W.: Proc. Soc. Exper. Biol. & Med. **73:** 496 (March) 1950.

4. Smith, W. W.; Smith, F., and Thompson, E. C.: Proc. Soc. Exper. Biol. & Med. **73:** 529 (March) 1950.

1. Dolger, H.: Clinical Evaluation of Vascular Damage in Diabetes Mellitus, J. A. M. A. **134:** 1289, 1947. Chute, A. L.: Survey of Patients with Juvenile Diabetes Mellitus, Am. J. Dis. Child. **75:** 1, 1948. White, P., and Waskow, E.: Clinical Pathology of Diabetes in Young Patients, Southern Med. J. **41:** 561, 1948.

2. Jackson, R. L.; Hardin, R. C.; Walker, G. L.; Hendricks, A. B., and Kelly, H. G.: Degenerative Changes in Young Diabetics in Relationship of Level of Control, Proceed. Am. Diab. Assoc. **9:** 307, 1949.

3. Jackson, R. L.; Boyd, J. D., and Smith, T. F.: Stabilization of the Diabetic Child, Am. J. Dis. Child. **59:** 332, 1940.

4. Jackson, R. L., and McIntosh, C. B.: Treatment of the Diabetic Child with Particular Reference to the Use of Globin Insulin, Am. J. Dis. Child. **70:** 307, 1945.

UNIVERSITY OF MICHIGAN LIBRARIES

instructed, the patient's daily routine and exercise evaluated and psychologic and social care given. Regular follow-up care was maintained, during which progress was reviewed and continuous instruction and reassurance of the patient and the parents afforded.

Jackson and co-workers (1948-1949) at Iowa studied 75 unselected diabetic patients who had had the disease ten years or more and who were seen frequently for years; many had kept extensive daily records of their diabetic control, and all had had their control evaluated at the time of each clinic visit. From these extensive records an over-all numerical control rating was determined. Computation of the control rating was done by one worker and examination of the patients for degenerative changes by others, independently and without knowledge of the patient's previously determined control rating. In this group of 75 unselected patients, 30 per cent obtained low (good) over-all control ratings.

The incidence of lens changes in the total group of patients was 15 per cent, of diabetic retinopathy 47 per cent, of early calcification of the arteries 16 per cent, of hypertension 4 per cent and of albuminuria 4 per cent. The 30 per cent of the patients who maintained a good level of control ten or more years had no significant degenerative changes. Only the patients with poor control had more advanced degenerative changes.

The level of control as well as the duration of the disease was found to be an important factor influencing degenerative changes. The authors believe that this is the first objective evidence that level of control is an important factor in delaying or preventing degenerative changes. They concluded that, according to present knowledge, a high level of control offers the best means of averting or delaying chronic degenerative changes. They hold that an optimistic outlook for the diabetic is warranted.

TRANSPORT OF ABSORBED FAT

Almost 60 years ago, a report [1] was made describing unusual observations bearing on the transport of absorbed fat. As much as 60 per cent of the fat in an ingested meal was recovered in the drainage from a lymph fistula of the leg. This classic discovery is the basis for the widely held view that the lymph is the avenue of transport of a large proportion of the fat absorbed from the gut. However, subsequent studies have not borne out these claims. Thus, working with anesthetized dogs, Eckstein [2] recovered in the lymph only 21 per cent of administered lipid in 12 hours in one experiment and 17 per cent in six hours in another. Again, in a different investigation but with similar technic and preparations, only 4 to 17 per cent of ingested fat was recovered during and immediately after absorption.[3]

The part played by the lymph in the transport of lipids has again received attention [4]; tripalmitin or palmitic acid with labeled carbon in the carboxyl group was given to rats by stomach tube. The rats had previously (20 to 53 hours) been prepared with a permanent fistula in the thoracic duct or in one of the intestinal lymph trunks, in such a way that the withdrawal of samples of lymph was possible without anesthesia. Twenty-four to 118 cc. of lymph was collected in 19 to 24 hours, after which the animals were killed. By equating the C^{14} administered with that remaining in the gut, one could estimate the amount of lipid absorbed and, by comparing this quantity of C^{14} with that in the lipids in the lymph, one could estimate the proportion of absorbed fat carried in the lymph. In 12 animals, 81 to 95 per cent of the lipid fed was absorbed, the data confirming the high degree of absorption usually seen with fats. With respect to the lymphatic transport, it was observed that 70 to 92 per cent of the absorbed labeled fatty acid was recovered in the thoracic lymph and 69 to 84 per cent from the intestinal lymph.

The foregoing data suggest that the absorbed fat travels to the systemic circulation via the lymph channels in large measure. Whether the anesthesia used in some of the earlier studies alters this behavior remains to be demonstrated. There is little doubt, however, that, even in these recent experiments, part of the absorbed lipid reaches the blood by another route, yet to be discovered.

Current Comment

SAFETY FIRST

This week end, the fourth of July week end, is one during which many tragic accidents occur. The National Safety Council is urging people to be extra careful to offset, at least in part, the increased holiday hazards. The proper appoach by all who in any way will attempt to commemorate the birth of this nation's independence is one of intelligent fear—recognition of the extra hazards and determination to meet them with extra care. Apparently the fourth of July week end is one of the most dangerous single periods of the year, and the National Safety Council's exhortation to "be alive on the fifth" is not amiss or just a slogan, as probably hundreds of persons who begin this holiday will not be alive when it is ended. Physicians are human, and they too are urged to recognize the need for patience in a slow-moving line of cars; to resist the temptation to swim alone after a hardy picnic lunch; to remember the hazards of firecrackers, particularly where children are involved, and, as the National Safety Council states, to "get a little scared on the fourth and be alive on the fifth."

1. Munk, I., and Rosenstein, A.: Arch. f. path. Anat. **123**: 230, 1891.
2. Eckstein, H. C.: J. Biol. Chem. **62**: 743, 1925.
3. Little, J. M., and Robinson, C. S.: Am. J. Physiol. **134**: 773, 1941.
4. Bloom, B.; Chaikoff, I. L.; Reinhardt, W. O.; Entenman, C., and Dauben, W. D.: J. Biol. Chem. **184**: 1 (May) 1950.

WASHINGTON NEWS

House Hearings on Plan 27

Proponents and critics of Reorganization Plan 27 are transferring their attention to the House, where a vote—possibly decisive—will come in the near future. If the House disapproves the plan, the idea will be dead for this session of Congress. If it approves, the Senate still may exercise its own right to vote down the proposal. Under plan 27, the Federal Security Agency would be made into a full cabinet Department of Health, Education and Security.

In two days of rapid testimony taking, the House Expenditures Committee sampled public reaction and subjected a number of witnesses to sharp questioning. With some veterans organization spokesmen, they sought to establish that fear of a united medical administration was the decisive factor in their support of the plan. With medical witnesses, the members wanted to know to what extent fear of socialized medicine influenced their opposition.

Lined up with the American Medical Association against the plan were the American Dental Association, the American Association of University Women, the American Legion and the Citizens Committee for the Hoover Report.

A long list of organizations supported the plan, including A.F.L. and C.I.O., some education and public health groups, several veterans organizations and a number of individuals. Most prominent favorable witness was Oscar Ewing, present FSA administrator and prospective secretary of the proposed new department.

A.M.A.'s arguments against the realinement were presented by Dr. Louis H. Bauer, Chairman of the Board of Trustees. He told the committee that since 1875 the Association had advocated a Department of Health, headed by a secretary who is a doctor of medicine. He reminded the committee that a similar independent status for health activities was recommended by the Hoover Commission, but that plan 27 ran directly counter to this principle.

"Present activities of the federal government in relation to matters of health," he said, "present a confusing and uncoordinated picture. Various agencies concerned with health are distributed in many government departments. It would certainly seem to be in the interest of efficiency and economy to have them coordinated under one head, to avoid duplication of effort and diversion of activity." Of the proposal to group into a cabinet department federal activities on health, education and social security, he said, "Such a combination, in our judgment, would not advance adequate and proper federal programs to stimulate improvement in the health of the citizens of our country . . . (it) would tend to subordinate health programs."

In the questioning, Representative Porter Hardy (Democrat, Virginia) asked Dr. Bauer, "Isn't it a good tactical maneuver, sponsoring an independent agency so as to retard socialized medicine?" Dr. Bauer said, "No, because there are a great many federal health functions which have no connection with socialized medicine." Representative Chet Holifield (Democrat, California) wondered whether Dr. Bauer did not consider the VA program as socialized medicine. Dr. Bauer said he did not, ". . . because the patient has considerable freedom of choice of physician, particularly with fee physicians." Chairman William L. Dawson (Democrat, Illinois) wanted to get the attitude of the medical profession toward the whole social security program, asking Dr. Bauer whether he believed in the principles. "I believe," said Dr. Bauer, "that a physician should not comment on social security except as applied to medicine." Later, in obvious reference to Dr. Bauer and the A.M.A., Mr. Dawson commented that "many professional groups come down to Washington to try to get legislation in their own specific interests without any concern for the welfare of the people."

Immediately after the close of the second day's hearings, the Committee went into executive session and voted down the motion for disapproval of plan 27, in effect recommending that the House approve the reorganization.

Medical Education

Representative Andrew Biemiller, Wisconsin Democrat who is close to the White House on medical legislation, has further confused the picture on aid to medical education. Mr. Biemiller unexpectedly introduced a new bill on this subject (H. R. 8886) just two days after the House Interstate and Foreign Commerce Committee voted down a similar bill (H. R. 5940) by 8 to 7. Mr. Truman, it is understood, will exert pressure to get favorable action on Mr. Biemiller's bill.

A.M.A. had opposed the original bill but has had no opportunity to pass on the amended draft, which the committee pigeonholed. Major changes in the Biemiller bill would increase the maximum federal share of instruction costs from 30 to 40 per cent, eliminate the one-third minimum federal share of construction costs and provide for court appeal where schools are dissatisfied with instruction or construction grants.

Social Security Extension Bill

The A. M. A. came in for attention at the night session when the Senate overwhelmingly (81 to 2) approved the social security extension bill (H. R. 6000). In arguing for inclusion of a section on total and permanent disability, Senator Francis Myers, the Democratic floor leader, said the A. M. A. had pursued a vacillating policy on this subject. He cited a resolution passed by the House of Delegates in 1947, which favored disability insurance, then added: ". . . some members of the A. M. A.'s Board of Trustees now oppose federal disability insurance. However, it was brought out at the hearings before the Finance Committee that this opposition was not the official position of the A. M. A." (At the hearings, three officially appointed witnesses testified for the A. M. A. against the disability insurance section, Dr. James E. Paullin, Dr. R. L. Sensenich and Dr. Gunnar Gunderson.) Senator Myers did not explain further where he received his information that their testimony was not the "official position."

In the debate Senators Scott Lucas and Paul H. Douglas, both of Illinois, supported Senator Myers in his fight for disability insurance. However, on the voice vote the amendment received only scattered support. Observers could count fewer than a dozen supporters, out of about 80 senators then on the floor.

In arguing against the amendment, Finance Committee Chairman Walter F. George suggested that the question might come up again in conference with the House. He said, "The matter will be in conference anyway. It can be considered fully in conference, and there is little practical advantage in tying the hands of the Senate conferees on all the important provisions."

The disability insurance is in the bill passed by the House last year but was dropped out by the Senate Finance Committee after extensive discussion. A. M. A. has taken no position on the social security bill itself, but has confined its attention to the disability section. The Association's opposition is based on the facts that certification of disability would strain doctor-patient relationships, that such benefits would encourage malingering, with consequent delay in recovery, and that it would project the federal government into areas of state responsibility.

Whatever happens to the bill this year, the issue is certain to come up again. The Senate has authorized its Finance Committee to supervise an exhaustive study of the whole problem of social security, including its relation to private plans and the wisdom of converting to a direct pay-as-you-go system and complete coverage at age 65.

United Mine Workers Program

The United Mine Workers medical program, largest industry-wide plan in the country, resumed operations July 1, but with important restrictions on benefits. Dr. Warren F. Draper, medical director, said that, while certain benefits are reduced, the net effect will be to extend authorized benefits to more of the 400,000 member miners.

UNIVERSITY OF MICHIGAN LIBRARIES

The program stopped giving all but emergency service last September 1, after a partial coal strike reduced its funds. Under the present contract, for every ton mined the operators pay 30 cents to the Welfare and Retirement Fund, under which the medical program operates. Important changes: Now all members receive the same benefits, but drugs and home and office calls (formerly authorized for disabled and pensioned members) are not supplied. Obstetric care is provided only when hospitalization is necessary, and certain minor operations must be authorized by area medical administrator. Psychiatric care is no longer provided; now only diagnosis of these illnesses is authorized. Dr. Draper says these and other new regulations will restrict the use of welfare funds.

Some 6,500 fee physicians and 600 hospitals participate in the U.M.W. medical program. In the nine months the program operated last year 39,000 hospital patients were treated.

Compulsory Health Insurance

Virginia and Louisiana have joined the list of states officially opposed to enactment of a national compulsory health program. In the last day of its session the Virginia State Senate passed a resolution memorializing Congress not to approve such legislation. The Louisiana House of Representatives has passed a similar resolution. These bring to 15 the number of states which have expressed opposition.

Twelve hundred persons have been invited to the first National Conference on the Aging, which will be conducted August 13-15 in Washington, under sponsorship of the Federal Security Agency. It is expected that about 1,000 will accept and attend the sessions. FSA Administrator Oscar Ewing, announcing the meeting, said industry has shown more interest in these problems than has any other group. Also participating will be persons from church organizations, fraternal orders, civic organizations, medical groups and farm and labor organizations.

Mr. Ewing emphasized that invitations were not going out to organizations as such but to individuals who have shown an interest in the problems of the aging.

Miscellaneous Notes

The Children's Bureau publication reports that in the United States 100,000 children of 10 years or under have undiscovered congenital syphilis; a campaign is proposed to locate and treat every syphilitic pregnant woman and every syphilitic baby. . . . Dr. Dean A. Clark has been appointed head of the survey of voluntary health insurance plans being conducted by the Senate Labor and Public Welfare Committee. Dr. Clark is the general director of Massachusetts General Hospital and formerly head of the New York Health Insurance Plan. . . . Veterans organizations appearing before the President's special committee on VA hospitals voiced no complaint on the treatment of paraplegics. The three man committee was established to handle any complaints on the care of these special patients. . . . By April 1, the Hill-Burton program had approved 1,224 hospital applications and given final approval on 761; total construction cost of these is just under half a billion dollars, about one third of which the United States will pay. . . . A new section on the chemistry of natural products will complement other research at the National Heart Institute; the director is Dr. Evan C. Horning, formerly of the University of Pennsylvania. . . . there will also be a new laboratory devoted to medical research in radioisotopes, attached to the National Institutes of Health, designed to "afford maximum facilities for experimentation and maximum protection against radiation hazards of personnel." . . . House investigation of food purity is expected to be headed by Representative James J. Delaney of New York. The committee will look into the use of chemicals and synthetics in processing of foods, use of pesticides and insecticides, use of chemicals and synthetics in fertilizer and resulting effects on food. The group also will study properties of food grown on land fertilized by atom bomb products.

Organization Section

STATE LEGISLATION

Connecticut

Bill Introduced.—S. 39-XXXX proposes a number of changes relating to the state department of health among which are (1) that no person shall **serve as health commissioner** unless he shall be a physician, graduated from an acceptable medical school, of at least five years' experience in the actual practice of his profession, skilled in sanitary science and experienced in public health administration and shall have had a minimum of one year of university graduate instruction in public health, as evidenced by a certificate of graduation or a degree in public health; and (2) that there shall be located in the health department the various examining boards such as the state board of healing art, the medical examining board, the chiropractic examining board and the naturopathic examining board.

Louisiana

Bills Introduced.—H. 820 proposes an amendment to the constitution which would require **the state health officer** to be a duly qualified and registered physician having had at least five years' experience as director of a parish health unit or holding a master's degree in public health and having had at least three years' experience in full time public health administration, two years of which shall have been as director of a parish health unit. S. 260 proposes to authorize, in certain circumstances, the compulsory isolation and hospitalization of certain **persons infected with tuberculosis who** conduct themselves in a manner so as to expose other persons to the danger of infection. S. 350 proposes to amend the law relating to the **state health officer** by requiring that such officer shall be a physician qualified and licensed to practice in Louisiana and shall hold the degree of Master of Public Health and have had at least five years experience in the field of Public Health Administration.

Bill enacted.—S. Res. 10 was adopted June 1, 1950. It memorializes the Congress of the United States not to enact any proposed legislation the effect of which will be to bring the practice of medicine in this country under federal direction and control either through a form of **compulsory insurance** or any system of medical care designed for national bureaucratic control.

Massachusetts

Bills Introduced.—H. 2587 proposes to **continue a special commission** which is investigating and studying relative to the admission or commitment of persons to institutions under the jurisdiction of the department of mental health. H. 2602 proposes the enactment of a cash **sickness compensation act.**

Bills enacted.—H. 1253 has become chapter 453 of the Laws of 1950. It authorizes the department of labor and industries to require every physician treating a patient whom he believes to be suffering from any ailment or **disease contracted as a result of his employment** to report such information relative thereto as the department may require, and it authorizes the department to issue a list of such diseases which shall be regularly reported on by physicians. H. 1643 has become chapter 472 of the Laws of 1950. It amends the law relating to medical service corporations by permitting the inclusion of **dental services in contracts** therefor.

COMING MEDICAL MEETINGS

Alaska Territorial Medical Association, McKinley Park, Aug. 17-19. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Proctologic Society, Los Angeles, July 1-5. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

Montana State Medical Association, Bozeman, Gallatin County High School, July 9-12. Dr. Herbert T. Caraway, 115 N. 28th St., Billings, Secretary.

West Virginia State Medical Association, White Sulphur Springs, The Greenbrier, July 27-29. Mr. Charles Lively, P. O. Box 1031, Charleston 24, Executive Secretary.

International Meetings

International Anatomical Congress, Oxford, England, July 25-28. Secretary, Miss A. M. Maynall, Department of Human Anatomy, University Museum, Oxford, England.

International Association for the Prevention of Blindness, London, England, July 17-21. Prof. P. Bailliart, 47 rue de Bellechasse, Paris, France, Chairman.

International Cancer Research Congress, Paris, France, July 17-22. Secretariat, 6 Ave. Marceau, Paris 8, France.

International College of Surgeons, Buenos Aires, Argentina, August 7-12. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Secretary.

International Congress of Microbiology, Rio de Janeiro, Brazil, August 17-24. Dr. Olympio de Fonseca, Institut Oswaldo Cruz, Rio de Janeiro, Secretary.

International Congress of Ophthalmology, London, England, July 17-21. Mr. Keith Lyle, 45 Lincoln's Inn Fields, London W.C.2, England, Secretary.

International Congress of Radiology, London, England, July 24-28. Dr. J. W. McLaren, 45 Lincoln's Inn Fields, London, W.C.2, Secretary General.

International Pediatric Congress, Zurich, Switzerland, July 24-28. Dr. L. Emmet Holt Jr., 477 First Ave., New York City 16, Secretary-General.

International Society of Haematology, Copenhagen, Denmark, August 15-18. Dr. Martin Hynes, Cambridge University, England, Secretary.

International Society for the History of Medicine, Amsterdam, Holland, August 14-20. Professor, 58 Blvd. de la Croix Rousse, Lyon, France, Secretary.

International Union Against Venereal Diseases, Zurich, Switzerland, July 29-Aug. 2. Dr. A. Cavaillon, Institut A. Fournier, 25 Blvd. St. Jacques, Paris 14em., France, Secretary.

GOVERNMENT SERVICES

Air Force

New Flight Surgeons

Seventeen new flight surgeons graduated from the Air Force School of Aviation Medicine. The graduating class was addressed by Major Gen. Harry G. Armstrong, Air Force Surgeon General and a former commandant of the school.

The flight surgeon course, the longest offered at the School of Aviation Medicine, is taken only by medical officers of the regular air force and those who have applications pending for regular appointment. The course covers 39 weeks of instruction and 10 weeks of flight indoctrination. No flight rating is awarded, however, even though one does fly solo. Those receiving diplomas and flight surgeon wings were: Lieutenant Colonels Maurice B. Johnston, Johnstown, Pa.; Charles H. Bramlitt, Washington, D. C.; Ronald F. Kirk, Plainview, Neb.; Paul E. Lance, Petoskey, Mich., and Hartwin A. Schulze, Schenectady, N. Y.; Majors Donald M. Alderson, Hastings, Neb.; James M. Davis, St. Louis; Harold V. Ellingson, Parker, Idaho; Thurman A. Larson, Machias, Maine, and Paul E. Wright, Knoxville, Tenn. Captains Stanley Lutz Jr., Alliance, Ohio; Roy R. Patterson, Gueydan, La.; Robert W. Merkle, Clinton, Md.; David G. Simons, Marietta, Pa.; Walter R. Tkach, Monongahela, Pa.; William R. Turner, South Bend, Ind., and First Lieut. William K. Douglas, El Paso, Texas.

Nominations for Regular Commissions

Thomas K. Finletter, Secretary of the Air Force, has announced the following names nominated by the President for regular commissions as medical officers in the U. S. Air Force:

AS CAPTAINS:
Billy J. Carter, Chappell, Neb.
James F. Olley, Boston.
Henry C. Smith, Lawton, Okla.

AS FIRST LIEUTENANTS:
David Auld, Baltimore.
George S. Banning Jr., Takoma Park, Md.
James A. Bulen, San Francisco.
Sumner A. Cheeseman, Marlboro, New Hampshire.
George R. Cocks, Philadelphia.
Ferris E. Cook Jr., Conklin, Mich.
William W. Dixon, Ashland, Pa.
Arthur V. Dudley Jr., Olympia, Wash.
Paul F. Eggersten, Springville, Utah.
Roger W. Hedin, Willmar, Minn.
James A. Jernigan, Tupelo, Miss.
Billy D. King, Long Beach, Calif.
Harold J. Louis, Cincinnati.
Irving P. Majors, North Little Rock, Ark.
John P. McCann, Tacoma, Wash.
Robert A. Mendelson, Washington, D. C.
Robert W. Minnihan, Dixon, Ill.
Robert F. Morgan, Louisville, Ky.
Ralph A. Muhich, Eveleth, Minn.
John A. Rogness, Madison, S. D.
Carl M. Russell, Pittsburg Landing, Tenn.
Dasil C. Smith, Tacoma, Wash.
Paul H. Stavig, Olympia, Wash.
John F. Tracy, Renford, N. C.

AS LIEUT. COL.:
Earl L. Laird, Union, Miss.

Personal

Lieut. Col. Kenneth E. Pletcher, director, Department of Aviation Medicine, Air Force School, Randolph Field, Texas, has been named assistant U. S. Air attache in London, England. The School of Aviation Medicine at Randolph Field believes this is the first time an air force flight surgeon has been assigned to such a post.

Public Health Service

Regular Corps Examination for Medical Officers

An examination for appointment of medical officers in the Regular Corps of the U. S. Public Health Service will be held October 9-11 at a number of points throughout the United States. Applications must be received no later than Sept. 11, 1950. The appointments, which will be made in the grades of assistant surgeon and senior assistant surgeon, are permanent and provide opportunities to qualified physicians for a life career in clinical medicine, research and public health.

Requirements, both grades: United States citizenship, at least 21 years of age and graduation from a recognized school of medicine. Assistant surgeon: at least seven years of educational training and professional experience subsequent to high school. Senior assistant surgeon: at least 10 years of educational training and professional experience subsequent to high school.

Applicants who will complete these requirements within nine months of the date of the written examination will be admitted but may not be appointed until they meet the above requirements. Physicians who are successful in the examination and are now serving infernships will not be placed on active duty in the Regular Corps until completion of internship. The examination will include an oral interview, physical examination and written objective tests covering the professional field. Candidates must be found physically qualified as a result of an examination performed at a Public Health Service facility.

Gross pay is governed by the Career Compensation Act of 1949. Entrance pay for an assistant surgeon with dependents is $5,686.56 per annum and for senior assistant surgeon with dependents, $6,546. These figures include the $1,200 annual additional pay received by medical officers as well as subsistence and rental allowance. Provisions are made for promotion at regular intervals up to and including the grade of senior surgeon and for promotion by selection to the grade of medical director. Retirement pay after 30 years of service or at the age of 64 is three-fourths of annual basic pay at the time of retirement. Additional benefits include periodic pay increases (time served as a member of the armed forces is credited), 30 days' annual leave, sick leave, full medical care and many of the usual privileges extended to officers of the military forces.

Information may be obtained from the Surgeon General, U. S. Public Health Service, Washington 25, D. C., Attention: Division of Commissioned Officers.

Report on Influenza

The Influenza Information Center at the National Institutes of Health, Bethesda, Md., has summarized its second year of operation under the Influenza Study Program of the World Health Organization. The program in the United States operates under the general supervision of an Advisory Committee responsible to the surgeons general of the Public Health Service, the Army, Navy and Air Force.

There were 268,749 cases of influenza reported in the United States between July 30, 1949, the annual low point, and May 20, 1950. This was 162,629 cases more than were reported for the same period for the previous year and 92,871 more than the median of 175,878 influenza cases reported for this period for the last five years. The center points out that none of these statistics indicate an influenza epidemic of dangerous proportions.

Virus isolations and serologic tests showed that type A influenza virus was responsible for outbreaks of influenza in 20 states, the District of Columbia, Puerto Rico and the Territory of Hawaii. The only large outbreak of type B influenza in the United States was at the Naval Training Station, Great Lakes, Ill.

The National Influenza Strain Study Center located at State University Medical Center, Brooklyn, is endeavoring to discover strains of influenza virus which might have superior immunizing potentialities. This center is under the direction of Dr. T. P. Magill and operates under the Commission on Influenza of the Army Epidemiological Board. A total of 30 new isolated strains have been submitted to the center. As yet it is not possible to state whether any of these strains have

UNIVERSITY OF MICHIGAN LIBRARIES

superior immunizing potentialities compared with the strains of virus now incorporated in the influenza vaccine formula.

The Influenza Information Center was continued for a second year by a decision reached Oct. 1, 1949 by the Advisory Committee to the World Health Organization Influenza Study Program. During the two years that the program has been functioning, no federal funds have been specifically allocated to the participating laboratories for this work.

German Scientists in Training in U. S.

Twenty German physicians and scientists have arrived in the United States for three months of training under programs supervised by the Division of International Health. The training programs are conducted under a fellowship plan sponsored by the U. S. High Commissioner for Germany. Their names, affiliation and field of study follow:

Dr. Peter Stoll, gynecologist in the Clinic Goettingen and on the staff of the Pathologic Institute, Bremen; to study cancer detection technics and review clinical procedures.

Dr. Nupprecht Bernbeck, assistant professor, Docent Orthopedic Clinic, University df Munich; to study orthopedic surgery technics.

Dr. Alexander Von Lutzki, resident and research assistant, Surgical Department of the Moabit Hospital, Berlin; to study technics for general surgery.

Dr. Wilhelm Engert, first assistant, Pathologic Institute, Robert Koch Hospital, Berlin; to study internal medicine with emphasis on tuberculos.s.

Dr. Joseph Hamm, resident, Saint Joseph-Stift Hospital, Bremen; to study internal medicine.

Dr. Robert Kramer, scientific assistant in cardiology, Medical University Clinic, University of Munich; to study heart catheterization, angiocardiography and congenital heart malformations.

Dr. Hans Doener, assistant health officer of Wurtemburg-Baden, including the city of Karlsruhe; to study public health administration, communicable disease control and mental health.

Dr. Albert Herhlich, professor of internal medicine and tropical medicine, University of Munich; to review smallpox vaccination technics and study advances in tropical medicine, particularly in treatment of leprosy.

Dr. Klaus Th. von Brincken, health officer of Kreis Rosenheim, Bavaria; to study communicable disease control programs and public health administration.

Dr. Erich Jung, first assistant, Municipal Hospital for Women, Berlin-Neukoelln; to study technics and practice of obstetrics and gynecology.

Dr. Karl J. Scheppe, pediatrician, University Hospital for Children, Munich; to study pediatric practice and operation of pediatric wards and children's hospitals.

Dr. Margarete Steinthal, city health department, Stuttgart; to study maternal and child health, school health and communicable disease control.

Dr. Rudolph Stench, physician, Babi:s' Hospital, Ulm-Donau; to study pediatric care in hospitals and outpatient departments and care of premature infants.

Dr. Ludwig Baumer, director, Clinic Ambulatory, Nerve Clinic, Univers.ty of Munich; to study clinical psychiatry, shock treatment, psychotherapy and neurosurgery.

Dr. Johannes Cremerius, assistant physician, Nerve Clinic, University of Munich; to study technics for dynamic psychiatry and review research in psychosomatic relations, psychosurgery and other therapeutic technics.

Dr. Wilhelm R. Graf Finckenstein, resident, Staeltische Nervenklinik, Bremen; to study psychiatry and psychotherapy, especially for children and adolescents.

Dr. Hubert Lohmer, assistant physician, Hospital for Gynecology and Obstetrics, University Frauenklinik, Munich; to study somatic medicine and psychotherapy.

Dr. Felix Schottlaender, Institute of Psychotherapy, Stuttgart; to study relation between maternal neurosis and all forms of psychomatic and neurotic difficulties of children.

Dr. Hans Schwab, lecturer in psychiatry and neurology, University of Frankfurt; to consult with medical scientists on clinical psychiatry, psychosurgical technics, psychoanalysis and psychotherapy .

Dr. Herman Werner, clinic director, Nerve Clinic, University of Munich; to study advances in psychiatric treatment for the mentally ill.

Arctic Health Research Center

The Alaska field station of the Public Health Service has been named the Arctic Health Research Center. Dr. Jack C. Haldeman, Public Health Service officer in charge of the field station since its establishment by congressional action nearly two years ago, will be in charge of the center. Dr. Haldeman and his staff are stationed in Anchorage. The program of the center has been set up on a broad basis, which includes long and short term studies in environmental sanitation, bacteriology, physiology, biochemistry and entomology and studies in animal-borne diseases. A scientific research library has been established, the first of its kind in the North American Arctic. Studies of animal-borne diseases in the area have revealed a previously unknown foci of echinococcic infection among both wild and domestic animals. Trichinosis has been found among arctic marine mammals, which form an important part of the diet in coast regions, and among arctic carnivora in the interior.

Positions Open in Foreign Lands

Ten new positions at foreign posts are open to qualified physicians, according to the Division of Foreign Quarantine of the Public Health Service. Physicians appointed to fill the positions will conduct medical examinations of displaced persons. Physicians chosen to fill the new positions will begin their tour of duty on July 1, 1950, or shortly thereafter and will serve for about one year. They will be stationed in Germany, Austria, England, Italy, Greece and the Philippine Islands.

Physicians who qualify for the new positions will be commissioned in the Reserve Corps of the Public Health Service. Their commissioned grade will depend on their training and years of experience. Special foreign service allowances are provided which vary from $4 to $12 per day, depending on the cost of living at the post. Special allowances are not paid in Germany and Austria, as quarters, commissary, post exchange and clothing store privileges are available through the Army in these countries.

Applicants must be a citizen of the United States, at least 21 years of age and a graduate from an accredited medical school with at least seven years of educational training and professional experience subsequent to high school. Special training in psychiatry and tuberculosis is desirable but not essential. Physicians without dependents are preferred for assignment on short term tours of duty. Eligible physicians interested in these foreign assignments should write or wire the Division of Foreign Quarantine, Public Health Service, Washington 25, D. C.

Isotope Laboratory Opened

The new Isotope Laboratory of the National Institutes of Health of the Public Health Service began operation at Bethesda, Md., the week of June 5 according to an announcement by the Federal Security Administrator. The one story laboratory, costing $336,800, has been built to allow the addition of new equipment or replacement of old equipment as new materials and technics are developed. The laboratory is expected to serve somewhat as a guide for the radiation wing to be constructed as part of the clinical center of the Institutes. All laboratory spaces are air conditioned, with no recirculation of conditioned air.

A radiation safety group of five monitors, operating under the direction of the Radiation Safety Committee, constantly checks the various operations with special instruments, which can detect and measure radioactivity in amounts far below dangerous levels. The monitoring group also checks equipment by film, ionization chamber and Geiger counter readings, the radioactivity of exhaust gases and sewage effluent and is well equipped to direct contamination procedure in the event of spill or accident.

Course on Diagnosis of Mycotic Diseases

A four week course in laboratory diagnosis of mycotic diseases will be given this summer by the Laboratory Division of the Communicable Disease Center of the Public Health Service. The course is divided into two sessions: Part 1, to be held July 24-August 4, is on laboratory diagnosis of cutaneous and subcutaneous fungi; part 2, to be held August 7-17, is on diagnosis of systemic fungi. The training program will be conducted at the center's bacteriology laboratories in Chamblee, Ga. Emphasis is placed on the practical aspects of diagnostic laboratory procedures. Employees of state and local public health department laboratories are given first consideration, but applicants from hospitals and nonprofit laboratories are eligible for the course when vacancies exist. Applicants must have approval for the training from their state health officer.

Applicants are requested to apply well in advance. There is no tuition charge or laboratory fee for the course, but travel and living expenses must be arranged and paid by the applicant or his employer. Every effort is made to send notice of acceptance sufficiently in advance to allow students to arrange for living accommodations. Information may be obtained from the Laboratory Division, Communicable Disease Center, 291 Peachtree Street, N. E., Atlanta, Ga.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Q Fever Study Station. — The California State Department of Public Health has opened a new field station on the Davis campus of the University of California to study the distribution and transmission of Q fever found in California livestock. Investigations are under way to determine the manner in which the disease spreads from animals to humans and the effect of the disease on the animal hosts. The work will be carried on under the direction of Drs. Edwin H. Lennette and William H. Clark, both of Berkeley. The field station will be under the supervision of John B. Enright, Ph.D., assistant head of the Viral and Rickettsial Disease Laboratory, California State Department of Public Health. Dr. Enright has been studying Q fever for the past two and a half years.

Gold Cane Ceremony.—Dr. Edward Arthur Barthold Jr. of San Francisco, a member of the graduating class of the University of California Medical School, has been awarded the Gold Headed Cane, an honor presented annually to an outstanding graduating student. The cane was presented by Dr. William J. Kerr, professor of medicine, who revived the old English tradition 11 years ago. The cane is a symbol of fealty to the ideals of the medical profession, and it is traditional for the recipient to pass his cane down to successors of distinction. Dr. Barthold was chosen by fellow students and faculty as the senior who has demonstrated "the most outstanding qualities of a true physician and who has shown the greatest interest in the care of patients during his clinical years." In accord with the tradition that a physician of many years' service also receives a cane, Dr. LeRoy H. Briggs, San Francisco, who spoke at the ceremony, was presented a cane by Dr. Herbert C. Moffitt, San Francisco, former dean of the medical school, who was the first university physician of long service to receive a cane.

DISTRICT OF COLUMBIA

Georgetown University Centennial.—The Centennial Anniversary Celebration and Alumni Reunion of the Georgetown University School of Medicine were held June 9-10 at the Georgetown University Medical Center. The two day celebration included medical symposiums, operating clinics and scientific exhibits. The guest speaker at the anniversary alumni dinner was Senator Styles Bridges, East Concord, N. H.

FLORIDA

State Medical Election.—The Florida Medical Association at its meeting in April chose the following officers for the coming year: Drs. Herbert E. White, St. Augustine, president; David R. Murphey Jr., Tampa, president-elect; Richard A. Mills, Fort Lauderdale, Walter C. Page, Cocoa-Rockledge, and James H. Pound, Tallahassee, first, second and third vice presidents, respectively, and Robert B. McIver, Jacksonville, secretary-treasurer.

ILLINOIS

Hearing Institute.—In furtherance of its program to train nurses for hearing testing, the state Department of Public Health, with cooperation of the Department of Public Welfare and the Division of Services for Crippled Children, in June sponsored a two week hearing institute at the Illinois School for the Deaf at Jacksonville. This institute was attended by 35 nurses. In a similar course of training conducted last year 30 nurses were trained in technics of hearing testing. Six audiometers, each capable of testing hearing of up to 40 children at one time, are made available to local communities through the division of nursing program. Five of the audiometers are loaned through the cooperation of the state office of public instruction. The other was presented to the health department by the Federated Women's Clubs of Illinois.

Chicago

Gift to Tumor Institute.—The Chicago Tumor Institute was presented a check for $25,500 to aid in cancer research at a dinner May 28. The money, which was presented to Dr. Ludvig Hektoen, president of the institute, will be used for a 5 bed hospital which the institute plans to erect.

Scientists Receive Honorary Degrees.—Wallace O. Fenn, Ph.D., distinguished University of Rochester (N. Y.) physiologist, was awarded the honorary degree of Doctor of Science at University of Chicago commencement ceremonies June 16. Other recipients of the degree are: Sir Edward Mellanby, F.R.C.P., London, England, secretary, Medical Research Council of Great Britain from 1933 to 1949; Clarence Cook Little, Sc.D., Bar Harbor, Maine, director of the Roscoe B. Jackson Memorial Laboratory, and Dr. Oswald T. Avery, New York, bacteriologist and emeritus member of the Rockefeller Institute for Medical Research.

Dr. Colwell to Head Department of Medicine. — Dr. Arthur R. Colwell, a member of the Northwestern University Medical School faculty since 1933, has been awarded the first Irving S. Cutter Memorial Professorship in Medicine and named chairman of the department of medicine. The Cutter professorship was endowed by a Northwestern alumnus (THE JOURNAL, February 2, page 349) and named in honor of Irving S. Cutter, dean of the school from 1925 to 1941 and medical director of Passavant Memorial Hospital from 1928 until his death in 1945. Dr. Colwell is first vice president of the American Diabetes Association, a fellow of the American College of Physicians and also on the staff of Evanston Hospital.

KENTUCKY

Society News.—At the annual meeting of the Southwestern Kentucky Medical Association in Paducah on May 9 Dr. John G. Samuels Jr., Hickman, was elected president and Dr. William P. Hall, Paducah, secretary-treasurer.

Complete Organization of Citizens Health Committees. —The formation of Citizens Health Committees in each of the 120 counties in Kentucky has been completed. Each committee is composed of a physician selected by the doctors in the community, a dentist chosen by the dentists, a Fiscal (county) Court member and four other persons, including one woman, selected by the county organizations. The chief purpose of the committees, formation of which Dr. Bruce Underwood considers his most important project as state health commissioner, is to serve as the connecting link between the public and the county health departments. The organizations are making efforts to secure pasteurization of milk, proper sewage and garbage disposal systems, dental clinics, rural school sanitation, better nutrition programs and new quarters for county health departments. However, committees are entirely advisory, as the county boards of health constitute the official agencies in charge of health.

MASSACHUSETTS

Society News.—At the yearly meeting of the Massachusetts Society of Examining Physicians the following officers were elected: Drs. Joseph H. Burnett, Boston, president; John J. Crowley, Lynn, president-elect; John L. Doherty, Boston, vice president; J. Robertson Knowles, Boston, secretary and Robert C. Gwin, Brookline, treasurer.——At a meeting of the Massachusetts Trudeau Society June 8 the following officers were elected: Dr. Francis P. Dawson Jr., superintendent, Middlesex County Sanatorium, Waltham, president; Dr. John W. Strieder, Brookline, vice president, and Dr. David S. Sherman, superintendent, Boston Sanatorium, secretary-treasurer.

Survey of Hearing Abilities.—A total of 26,000 Bay State school children, one in every eleven, suffer from damaged hearing, according to the Massachusetts Department of Public Health. In a statewide drive to discover children with hearing defects, the department screened 325,000 children during the past two years, about 65 per cent of the school population of the state. A high number of school children have hearing defects in the middle and high-pitched ranges. "Until recently," said Philip W. Johnston, Ph.D., who heads the state health department's section on child growth and development, "these afflicted children remained undiscovered in ordinary hearing tests done by means of speech." While many of these children are not handicapped in hearing speech at the present time, he declared, many of them may be handicapped when they reach their mid-forties, or perhaps before.

UNIVERSITY OF MICHIGAN LIBRARIES

MISSOURI

State Medical Election.—The Missouri State Medical Association at its recent annual session in Kansas City installed Dr. William A. Bloom, Fayette, as president and chose Dr. C. Edgar Virden, Kansas City, president-elect; Drs. Jacob H. Summers, Lebanon, Joel W. Hardesty, Hannibal, and Carter W. Luter, Butler, vice presidents; Dr. Charles E. Hyndman, St. Louis, treasurer and Dr. Harold E. Petersen, St. Joseph, secretary.

Community Service Awards.—The Hospital Council's Community Service Awards for the greatest contribution to community health were presented to four civic organizations at a dinner June 6 at the Shereton Hotel, St. Louis. The four organizations sharing honors for their cooperation in establishing and supporting the one year Practical Nurse Training Program under the Board of Education are the Better Business Bureau, Hospital Division of the City of Saint Louis, the Practical Nurse Committee of the St. Louis Council on Community Nursing and the St. Louis Board of Education.

NEW YORK

Personals.—Dr. Henry Brill, assistant director of Pilgrim State Hospital at West Brentwood, L. I., since 1943, has been appointed director of Craig Colony for Epileptics, effective June 1. Craig Colony for Epileptics is located at Sonyea, Livingston County, and serves 2,279 patients from all parts of the state. ——At its one hundredth annual commencement exercises the University of Rochester conferred an honorary degree of Doctor of Laws on Dr. George Hoyt Whipple, dean of the university's school of medicine and dentistry since its founding 25 years ago.

Workshop in Cerebral Palsy.—A workshop in problems of cerebral palsied children and adults will be held at Syracuse University July 24-Aug. 11, sponsored by the Syracuse University School of Education, New York State Association for Crippled Children and the Cerebral Palsy Division of the National Society for Crippled Children and Adults. The three week workshop will carry two hours of university graduate or undergraduate credit. The Clinic of the Syracuse Cerebral Palsy and Handicapped Children's Association will be available for observation and demonstration. The workshop will be open to professional workers who have an interest in the problems of persons with cerebral palsy. It will be limited to 40 persons. Advance registrations are not required but are highly desirable. Registration and tuition fees are $34, and this amount prevails whether or not credit is asked for the workshop. Housing may be secured by writing to the office of the Dean of Women, Syracuse University, Syracuse 10, N. Y.

New York City

Award Moses Prizes.—The Henry L. Moses prizes for the best research done by alumni of Montefiore Hospital for Chronic Diseases during the year were awarded at the hospital on Alumni Day, June 7. First prize of $300 went to Dr. F. Adrian Kantrowitz for his paper on "an experimental artificial left heart to permit surgical exposure of the mitral valve in cats." Second prize of $150 was awarded to Dr. Solomon Garb for his paper on "effects of physiologic and pharmacologic agents on mammalian heart muscle." The third prize of $50 was won by Dr. Kenneth Sterling, Boston, for his paper on "serum proteins in infectious mononucleosis—electrophoretic studies." Dr. James B. Amberson delivered the annual Max Pinner Memorial Lecture, commemorating the fourth anniversary of the death of Dr. Pinner, former chief of the Division of Pulmonary Diseases at the hospital.

Health Maintenance Center Planned.—Plans for the creation in September of a new health center at Montefiore Hospital as part of an experiment aimed at keeping families well rather than treating their illnesses were disclosed June 5 by the College of Physicians and Surgeons of Columbia University, Montefiore Hospital and the Community Service Society, joint sponsors of the project. The Community Service Society is expected to finance the project during the first year by allocating $45,000 from specially designated funds. A group of families, not to exceed 500, will be selected to participate in the demonstration, which will have three major objectives: (1) to test the willingness of families to use physicians and other professional workers to keep them well rather than wait until illness occurs before seeking their services; (2) to determine the practicability of offering a rounded service that combines medical care with the social, psychologic and educational aspects of health care, and (3) to provide medical students an opportunity of becoming familiar with methods of health care that are not covered adequately in their present training. The new health maintenance unit will select "patients" from 4,000 families now under care of the hospital's Group Practice Unit and offer them periodic health appraisals and the services of public health nurses, caseworkers, nutritionists and other medical specialists. Caseworkers and public health nurses will "team up" with physicians, psychiatrists, psychologists, dentists and others in the effort to keep each member of the family in maximum health. The sponsors declared that if the experiment shows promise it will be continued for several years. The experiment is described as an outgrowth of the Community Service Society's experience in assisting families whose problems were found to be rooted in preventable sickness and disability. The plan has taken six years to develop. The Health Maintenance Center will have a physician in charge, appointed by an operating board of representatives from the three organizations. The board consists of the following persons: for the College of Physicians and Surgeons, Dr. Frederick R. Bailey, associate clinical director of medicine and chief of Vanderbilt Clinic; John W. Fertig, Ph.D., professor of biostatistics, School of Public Health; Dr. Richard L. Day, associate professor of pediatrics and associate attending pediatrician, Babies Hospital, and Aura E. Severinghaus, Ph.D., associate dean and chairman of the committee on instruction. For Montefiore Hospital, George G. Kirstein, trustee and chairman of the executive committee; Henry L. Moses, chairman of the board and vice chairman of the executive committee; Robert D. Steefer, vice president and chairman of the medical and legal committee, and Dr. Ephraim M. Bluestone, medical director. For the Community Service Society, Dr. George Baehr, trustee and chairman of the health maintenance committee; Guy Emerson, trustee and member of the committee on plan and scope; Sheridan Logan, trustee and member of the committee on the Institute of Welfare Research, and Stanely P. Davies, general director.

OHIO

Dr. Stecher Health Museum President.—Dr. Robert M. Stecher has been elected president of the Cleveland Health Museum, succeeding Dr. Lester Taylor, founder, who died suddenly while on vacation April 11. Dr. Stecher is a founder-member of the Cleveland Health Museum, a member of the Board of Trustees, and has been chairman of the Committee on Foundations. The new president is a graduate of Dartmouth College and of Harvard Medical School. He has been a member of the medical staff at Cleveland City Hospital since 1926 and assistant clinical professor of medicine, Western Reserve University Medical School, since 1940. Dr. Stecher has been honorary consultant, Army Medical Library, directing librarian, Cleveland Medical Library, president, American Rheumatism Association, American editor, *The Practitioner*, London, and associate editor, New Gould Medical Dictionary, and is president-elect, Ligue Internationale Contre le Rhumatisme.

PENNSYLVANIA

Rural Health Workshop.—The fifth and sixth rural health education workshops will be held at Pennsylvania State College July 5-July 22 and July 24-August 12. The workshops are designed for teachers of one room rural schools, school nurses and others engaged in rural health work. Graduate and undergraduate credits will be given those completing the course. Sponsors of the sessions are the Pennsylvania Department of Health, the School of Physical Education and Athletics of the Pennsylvania State College, and the Pennsylvania Tuberculosis and Health Society and its affiliated agencies. Funds have been contributed by the state department of health and the state tuberculosis and health society to assist in administration and sponsorship of the workshop scholarships. The scholarships are worth $85 to the selectees for attendance at the sessions. Afternoon sessions will be devoted to the study of group dynamics in the solution of health problems on the local level. An exhibit room will display health education material.

Philadelphia

Personal.—An honorary degree of Doctor of Science was awarded to Dr. Stanley P. Reimann, scientific director of the Cancer Research Institute of Philadelphia, by the Philadelphia College of Pharmacy and Science June 12.

Woman's Medical College.—Woman's Medical College of Pennsylvania closed its centennial year commencement with breaking of ground for its new $425,000 nurses' home June 15. The ceremony followed the commencement address by Dr. Leona Baumgartner, New York, associate chief of the Children's Bureau. The college has been notified to vacate its present nurses' home, a rented building in Germantown.

TENNESSEE

Course for Laboratory Personnel.—To meet an acute shortage of trained laboratory personnel, the University of Tennessee College of Medicine, Memphis, is offering a course in medical technology, beginning July 10. Only 20 students can be admitted. Students who complete the course with credit will be awarded a bachelor of science degree in medical technology. Applicants must have completed at least two years of college with a minimum of 105 quarter hours of credits. The course is open to men and women. Information may be obtained from the assistant dean, College of Medicine, University of Tennessee, 874 Union Avenue, Memphis 3.

GENERAL

Weekly Poliomyelitis Report.—According to the U. S. Public Health Service, reported cases of poliomyelitis in the United States increased from 207 the preceding week to 236 for the week ending June 17. For the corresponding weeks of last year 243 and 278 cases, respectively, were reported. The largest numbers of cases for the week of June 17 were reported by California (19) and South Carolina (10).

Vitamin Foundation Grants.—Twelve new grants totaling $78,150 and effective July 1 for research in the field of nutrition were announced in June by the National Vitamin Foundation. The foundation makes grants in aid of research semiannually. The largest sum ($22,500) was awarded to Dr. Winslow T. Tompkins, Pennsylvania Hospital, Philadelphia, for a three year study of the significance of nutrition and nutritional deficiencies in human pregnancy.

Meeting on Surgery of Trauma.—The American Association for the Surgery of Trauma held its annual session June 22-24 at Salt Lake City, under the presidency of Dr. Gordon M. Morrison, Boston. Thirty-seven papers were presented. At the annual banquet Friday evening Dr. Hyrum L. Marshall, professor of public health and preventive medicine and acting dean of the University of Utah Medical School, Salt Lake City, spoke on "Trauma in the Open Spaces."

Society Elections.—At the recent annual meeting of the American Association of the History of Medicine the following officers were elected for a two year period: Dr. Ralph H. Major, Kansas City, Mo., president; Dr. John F. Fulton, New Haven, Conn., vice president; Dr. Iago Galdston, New York, secretary, and Dr. Emerson C. Kelly, Albany, N. Y., treasurer. ——The American Psychoanalytic Association at its annual meeting in April elected the following officers to take office at the next annual meeting, May 4-6, 1951: Dr. Robert P. Knight, Stockbridge, Mass., president; Dr. Ives Hendrick, Boston, president-elect; Dr. LeRoy M. A. Maeder, Philadelphia, secretary, and Dr. William G. Barrett, San Mateo, Calif., treasurer.——At the annual session in May of the American Urological Association the following officers were elected for the ensuing year: Dr. Thomas D. Moore, Memphis, Tenn., president; Dr. Elmer Hess, Erie, Pa., president-elect; Dr. Charles H. deT. Shivers, Atlantic City, N. J. secretary, and Dr. George C. Prather, Brookline, Mass., treasurer.

Grant to Promote Care of Poliomyelitis Patients.—March of Dimes grants totaling $53,762 from the National Foundation for Infantile Paralysis will enable the American Physical Therapy Association to include an intensive study of physical therapy home care plans in its educational program and to provide epidemic services. The association will make an intensive study of physical therapy home care plans in operation in various parts of the country. The goal of the study of home care plans is to provide guidance to the agencies providing physical therapists for home care as well as advising the physical therapists thus employed. Efforts will be made to include physical therapy in the home care plans in school curriculums and to stimulate physical therapists to accept field service employment. The second March of Dimes grant of $33,936 will permit the American Physical Therapy Association to recruit physical therapists for emergency assignment to communities in the United States where a decided increase of poliomyelitis has caused a shortage of physical therapists essential in the treatment of the disease.

Dr. Barnwell Awarded Trudeau Medal.—Dr. John B. Barnwell, chief, Tuberculosis Division, U. S. Veterans Administration, since 1946, has been awarded the 1950 Trudeau Medal of the National Tuberculosis Association. The medal was presented at the opening of the annual meeting in Washington, D. C., in April. Presentation was made by Dr. Howard W. Bosworth, medical director of Barlow Sanatorium, Los Angeles, who received the award last year. The Trudeau citation states that Dr. Barnwell had "improved the quality of treatment of tuberculosis in thousands of cases in many hospitals, and through his organization and support of a nationwide research program he has given the means of evaluation of new treatments under protocols that give the answers months and even years earlier than we could ever have had them before. With his enthusiasm and untiring effort he has expanded into clinical application the results of our research workers and investigators in such a way that, while it benefits the hospitals which are his responsibility, the results are of great value to the entire world." Dr. Barnwell is a graduate of the University of Pennsylvania Medical School, Philadelphia. He has been a resident physician at Trudeau Sanatorium, Saranac Lake, N. Y., and an associate professor at the University of Michigan and physician in charge of the tuberculosis unit at the University Hospital there. He served as president and vice president of the American Trudeau Society.

Committee to Develop Community Heart Programs.—Formation of a Special Advisory Committee of authorities in public health, preventive medicine and medical social work to assist in the development of community heart disease programs was announced June 5 by Dr. John W. Ferree, public health director of the American Heart Association. Dr. William A. Brumfield Jr., deputy commissioner of the New York State Department of Health, was named chairman of the new body, which will work closely with the association's Public Health Division in planning detailed program activities. For the past year field representatives of the Public Health Division have traveled throughout the country giving assistance in the formation of affiliated heart associations and the development of programs to meet the cardiac needs of various communities. Their efforts will be facilitated by the new committee. The members of the committee will work with clinicians from the various special fields to develop a comprehensive guide for local cardiovascular disease program activities. In addition to Dr. Brumfield, members of the Special Advisory Committee include: Drs. Martin Cherkasky, New York; Leonard J. Goldwater and Leo Price of New York; Frederick G. Gillick, Washington, D. C.; Ward Darley, Denver; Earle A. Irvin, Detroit; Harold M. Marvin, New Haven, Conn.; David D. Rutstein, Boston; James L. Wilson, Ann Arbor, Mich.; W. Thurber Fales, Sc.D., Baltimore; Ira V. Hiscock, Sc.D., New Haven, Conn.; Dorothy B. Nyswander, Ph.D., San Francisco; Miss Bessie Schless, Boston, and Miss Margaret B. Taylor, R.N., Minneapolis.

DEATHS IN FOREIGN COUNTRIES

Dr. Alfonso Quinonesy Molina of San Salvador, El Salvador, who frequently represented his country at international medical conferences and was three times president of El Salvador, died at his home May 22, aged 77.——**Dr. Franz Volhard,** 78 years old, was killed in an automobile accident May 24 while traveling to the meeting of the Swiss Society for Internal Medicine. Dr. Volhard with T. Fahr published in 1914 the system of classification of renal diseases. For more than a generation his clinic in Frankfurt was a mecca for those interested in renal disease. In 1938 he retired as professor of internal medicine at the University of Frankfurt, Germany.

CORRECTIONS

American Proctologic Society.—This society will hold its annual meeting July 2-5 at the Biltmore Hotel, Los Angeles, not San Francisco as was stated in THE JOURNAL June 10, page 564.

Board Associate Examiners.—Dr. Russell R. deAlvarez is located at the University of Washington in Seattle and not in Portland, Ore., as was reported in THE JOURNAL April 8, page 1089, in an item listing the associate examiners of the American Board of Obstetrics and Gynecology at pathology examinations held May 21-28.

Marriages

SEAMUS PATRICK NUNAN, Washington, D. C., to Miss Harriet Barbara McCormick at New Brunswick, N. J., April 29.

HOWARD SHEFFIELD JECK JR., Westport, Conn., to Miss Eileen Isabel McLellan of Pelham, N. Y., May 13.

RICHARD B. MAXWELL JR., Harrisburg, Pa., to Miss Helen Davidson Plyler of Greensboro, N. C., May 6.

THOMAS GEORGE EDISON to Miss Katherine Nelson Fisher, both of Washington, D. C., April 29.

WILLIAM L. BALLENGER to Mrs. A. M. Elton, both of Atlanta, Ga., April 22.

UNIVERSITY OF MICHIGAN LIBRARIES

DEATHS

Kendig, H. Evert, Philadelphia; born in Newville, Pa., Oct. 22, 1878; graduated from the department of pharmacy at Medico-Chirurgical College in Philadelphia in 1901 and from the medical department of that institution in 1905; in 1910 received the degree of Doctor of Pharmacy from Temple University; instructor in pharmacy at his alma mater from 1901 to 1904 and assistant professor, 1904-1905; dean and professor of pharmacy at the Florida College of Pharmacy in Gainesville, 1906-1907; in 1907 became professor of pharmacy at Temple University and since 1932 was professor of public health and dean of the school of pharmacy; associate professor of pharmacology at the Temple University School of Medicine from 1914 to 1922, professor of pharmacology and toxicology at the Women's Medical College of Pennsylvania from 1922 to 1926; during World War I, as chairman of a joint committee on the status of pharmacists in government service, he aided the adoption of new legislation concerning pharmacists in the armed forces; in recognition of his contribution was selected as the 1944 recipient of the Remington Medal; served as major and adjutant, Temple University Professional Schools Training Corps during World War I; became captain in the Pennsylvania National Guard in 1920; served on many committees of pharmaceutical associations, city, state, and national; president of the American Association of Colleges of Pharmacy for the 1940-1941 and chairman of its Committee on Scholarships, 1941; director of the American Foundation for Pharmaceutical Education, which he was serving as vice president at the time of his death; member of the Committee on the Pharmaceutical Survey; in recognition of his efforts in behalf of pharmaceutical education was chosen to receive the 1950 General Alumni Award of Temple University; in 1946 received a medal from the New Hampshire Pharmaceutical Association; past president of the Philadelphia Branch of the American Pharmaceutical Association; member of the Pennsylvania Pharmaceutical Association and chairman of the committee on education; member of the American Pharmaceutical Association Committee on United States Pharmacopeia from 1934 to 1943; member of the Committee on Revision of Recipe Book III, 1934-1943; honorary life member of the Idaho, Maryland, North Dakota and Utah State pharmaceutical associations and the Philadelphia Association of Retail Druggists; died in the Temple University Hospital April 18, aged 71, of dermatomyositis.

Goepp, Rudolph Max, Philadelphia; born in Staten Island, N. Y., Oct. 31, 1866; University of Pennsylvania Department of Medicine, Philadelphia, 1900; at one time professor of principles and practice of medicine and of clinical medicine at the Woman's Medical College of Pennsylvania and on the faculty of the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; affiliated with Philadelphia General Hospital; for many years medical referee of the Aetna Life Insurance Company and medical consultant for the First National Bank; author of "Medical State Board Questions and Answers," "Dental State Board Questions and Answers" and "Nurses' State Board Questions and Answers"; died May 18, aged 83, of cerebral hemorrhage.

Ledwidge, Patrick Liam ✠ Detroit; born in Anderson, Mich., May 18, 1890; Detroit College of Medicine and Surgery, 1920; assistant professor of clinical medicine at his alma mater, now known as the Wayne University College of Medicine; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; past president of the Michigan State Medical Society and for five years speaker of its house of delegates; on the board of directors of the Michigan Medical Service; served on the staffs of the Harper Hospital and Mount Carmel Mercy Hospital; died April 15, aged 59.

Ward, Henry Silas ✠ Birmingham, Ala.; University of Nashville Medical Department, 1898; formerly professor of neurology and clinical medicine at the Graduate School of Medicine of the University of Alabama; served on the state board of censors; past president of the Jefferson County Medical Society and vice president of the Medical Association of the State of Alabama; at various times affiliated with the Hill Crest Sanitarium, Hillman and Norwood hospitals; on the staff of the Carraway Methodist Hospital, where he died April 17, aged 83, of a cerebral accident.

✠ Indicates Fellow of the American Medical Association.

Axilbund, Samuel ✠ Philadelphia; Temple University School of Medicine, Philadelphia, 1912; affiliated with St. Mary's Hospital; died May 21, aged 62, of angina pectoris.

Cerasa, Nunzio Tom, Peru, Ill.; Chicago Medical School, 1946; member of the American Medical Association; died April 27, aged 40, of acute coronary disease and general arteriosclerosis.

Cornwell, Nelson L. ✠ Coyle, Okla.; (licensed in Oklahoma, under the Act of 1908); died May 7, aged 74, of pellagra and bronchitis.

Dunn, James Frederick, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1908; member of the American Medical Association; affiliated with the Illinois Central Hospital, where he died April 29, aged 67, of coronary heart disease.

Ellithorp, Robert Lincoln ✠ Gloversville, N. Y.; Albany (N. Y.) Medical College, 1897; past president of the Fulton County Medical Society; health commissioner of Gloversville and coroner of Fulton County for many years; served during World War I; senior consultant of the staff of Nathan Littauer Hospital; died April 26, aged 78, of carcinoma of the prostate.

Farbar, Marian Eleanor, Valdosta, Ga.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; member of the American Medical Association; went to India in 1912 as a medical missionary under the Baptist Foreign Missionary Society in New York and returned to the United States in 1924; since 1934 resident physician and teacher in biology at Georgia State Women's College; died May 4, aged 78, of carcinoma of the colon.

Fleming, Thomas F., ✠ Exeter, Pa.; Baltimore Medical College, 1901; for many years affiliated with the Pittston (Pa.) Hospital, where he died May 6, aged 76, of cerebral hemorrhage.

Frank, Philip, Syracuse, N. Y.; Yale University School of Medicine, New Haven, 1907; died April 21, aged 66 of coronary thrombosis.

Ginsburg, Irving, Chicago; Chicago Medical School, 1938; member of the American Medical Association; died June 6, aged 36, of rheumatic heart disease.

Glidden, Edson W. ✠ Worcester, Mass.; University of Maryland School of Medicine, Baltimore, 1907; member of the American College of Chest Physicians and the American Trudeau Society; fellow of the American College of Physicians; served at the War Risk Bureau in Washington, D. C., during World War I; member of the board of directors of the Southern Worcester County Health Association; since Jan. 1, 1933, medical director and superintendent of Worcester County Sanatorium; died April 26, aged 65, of coronary occlusion.

Going, Joseph Gary, Union, S. C.; Southern Medical College, Atlanta, 1891; member of the American Medical Association; died in Wallace Thomson Hospital April 26, aged 84, of a cerebrovascular accident.

Grayson, Stewart Maxwell, Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1916; member of the American Medical Association; served in major campaigns during World War I and was awarded the Silver Star and Purple Heart; served during World War II; formerly on the staff of George Washington University Hospital; died in Mount Alto Hospital December 31, aged 62, of hypertension.

Griffis, George C., Riviera Beach, Fla.; Detroit College of Medicine, 1906; also a graduate of the law school; formerly practiced in Detroit, where he was on the staff of the East Side General Hospital; died in Orlando May 10, aged 73.

Hager, Christian, Braddock, Pa.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1884; member of the American Medical Association; for many years associated with the local board of health; died May 16, aged 91, of bronchopneumonia.

Haworth, Dale Emmett, Beardstown, Ill.; Bennett Medical College, Chicago, 1915; member of the American Medical Association; died April 7, aged 56, of cerebral hemorrhage.

Hayhurst, Joseph Owen ✠ Inglewood, Calif.; Barnes Medical College, St. Louis, 1907; past president of the Rolette County (N. D.) Medical Society; affiliated with Centinela Hospital; died April 29, aged 73, of coronary thrombosis.

Hepler, Charles Verne, New Bethlehem, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1905; member of the American Medical Association; died April 21, aged 68, of carcinoma of the left lung.

Hill, James Charlesworth ✠ Newton, Iowa; Rush Medical College, Chicago, 1905; councilor of the Sixth District of the Iowa State Medical Society, of which he had been vice president; affiliated with Skiff Memorial Hospital; died in Methodist Hospital, Des Moines, April 24, aged 72, of pulmonary edema.

Hill, Trouse A., Cleveland, Okla.; St. Louis College of Physicians and Surgeons, 1909; member of the American Medical Association; died May 3, aged 69.

Hirsch, Marcus ✠ Chicago; Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main, Prussia, Germany, 1920; died in Mount Sinai Hospital May 31, aged 55, of acute myocardial infarction.

Howell, Jesse Lee, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; past president of the state board of medical examiners; served during World War I; died April 26, aged 58, of bronchial asthma.

Kelly, James Francis, Monessen, Pa.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; died April 29, aged 70.

Levinson, Julian David, Chicago; Northwestern University Medical School, Chicago, 1946; formerly an intern and resident in pediatrics at Cook County Hospital; served during World War II; member of the clinical staff of the Sarah Morris Hospital for Children of Michael Reese Hospital; received the Maurice Lamm Blatt Prize for investigative work on diarrhea in children; died at Laramie, Wyo., June 1, aged 27, of acute coronary thrombosis.

Libby, Mildred Augusta, Holden, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; member of the American Medical Association; died in Holden (Mass.) Hospital May 2, aged 75, of hypertensive heart disease.

Little, Wilbur Grant, Chicago; Rush Medical College, Chicago, 1902; died in the Veterans Administration Hospital in Hines, Ill., May 7, aged 85, of cerebral arteriosclerosis.

Machler, F. Patrick, Evanston, Ill.; George Washington University School of Medicine, Washington, D. C., 1910; died in the Sacred Heart Sanitarium in Milwaukee, June 10, aged 70, of carcinoma of the liver, stomach and colon.

Mallory, Frank Nicholson, Lawrenceville, Va.; Medical College of Virginia, Richmond, 1906; for many years county coroner; died April 21, aged 69, of brain tumor.

Malloy, Thomas Edwin ✠ Random Lake, Wis.; Northwestern University Medical School, Chicago, 1894; an Associate Fellow of the American Medical Association; affiliated with St. Nicholas Hospital in Sheboygan, where he died May 9, aged 86, of carcinoma of the sigmoid colon.

Marks, Charles Hale, New Kensington, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1923; member of the American Medical Association; affiliated with the Citizens General Hospital; died in the Presbyterian Hospital in Pittsburgh May 14, aged 52, of cerebral hemorrhage.

Matthews, J.D. Frederick, San Antonio, Texas; Baylor University College of Medicine, Dallas, 1942; member of the American Medical Association; served during World War II; died in the Robert B. Green Hospital May 11, aged 35, of acute poliomyelitis.

Nance, Luciel Cress, Hoxie, Kan.; University of Kansas School of Medicine, Kansas City, 1948; affiliated with St. Thomas Hospital in Colby; died April 22, aged 49, of intra-abdominal hemorrhage following an automobile accident.

Neve, Herman Ebenhardt, Rolette, N. D.; Rush Medical College, Chicago, 1938; member of the American Medical Association; affiliated with Community Hospital; died April 22, aged 47.

Newkirk, Richard Carlysle ✠ Joplin, Mo.; University of Louisville (Ky.) Medical Department, 1921; affiliated with St. John's Hospital and Freeman Hospital, where he died April 14, aged 57, of hypertensive cardiovascular renal disease.

Pearce, Robert Sims ✠ Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1915; on the staff of St. Joseph's Hospital, where he died May 9, aged 56, of coronary occlusion.

Perry, Mabelle Jeanne ✠ Norwalk, Conn.; New York Medical College and Hospital for Women, Homeopathic, New York, 1903; served on the local board of health; affiliated with Norwalk Hospital, where she died May 17, aged 72, of cerebral hemorrhage.

Perry, Samuel Wesley ✠ New Castle, Pa.; Jefferson Medical College of Philadelphia, 1899; fellow of the American College of Physicians; past president of the Lawrence County Medical Society; affiliated with Jameson Memorial Hospital and New Castle Hospital; died May 9, aged 75, of coronary heart disease.

Pitkin, Dwight Livingston, St. Louis; University of Louisville (Ky.) School of Medicine, 1948; served an internship at St. Louis City Hospital; drowned while swimming at West Palm Beach, Fla., May 4, aged 23.

Price, Charles Gary, Durant, Okla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1904; member of the American Medical Association; past president of the Bryan County Medical Society; died in Durant Hospital April 7, aged 67, of heart disease.

Purcell, Albert Charles ✠ Streator, Ill.; Rush Medical College, Chicago, 1905; affiliated with St. Mary's Hospital, where he died April 24, aged 69, of acute cardiac failure.

Rich, Charles O'Neill ✠ Omaha; Medico-Chirurgical College of Philadelphia, 1898; an Associate Fellow of the American Medical Association; associate professor emeritus of surgery at the University of Nebraska College of Medicine; for many years affiliated with the Bishop Clarkson Memorial Hospital; died April 13, aged 75, of coronary thrombosis.

Ridgell, William James, Kleberg, Texas; Louisville (Ky.) Medical College, 1894; died May 4, aged 81, of injuries received in a fall.

Ringle, Charles A., ✠ La Junta, Colo.; Northwestern University Medical School, Chicago, 1892; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; formerly practiced in Greeley, where he was affiliated with the Weld County Public Hospital; died April 22, aged 83, of coronary occlusion.

Rollins, Frederick Herbert, St. Charles, Minn.; Rush Medical College, Chicago, 1897; served in France during World War I; for many years on the school board; formerly mayor, alderman and state senator; died in St. Mary's Hospital, Rochester, April 27, aged 82, of coronary sclerosis.

Sawyers, Sylvester Harlan, Eldon, Iowa; Rush Medical College, Chicago, 1887; for many years physician for the Chicago, Rock Island and Pacific Railroad; died April 20, aged 88, of carcinoma of the prostate.

Sheinmel, Archie ✠ Yonkers, N. Y.; George Washington University School of Medicine, Washington, D. C., 1934; specialist certified by the American Board of Radiology; member of the American College of Radiology; chief of the radiology department, Veterans Administration Hospital in New York; served during World War II; at one time associated with the Indian Service; died in Yonkers General Hospital May 3, aged 44.

Smith, Frederick DeWitt ✠ Guilford, Conn.; Hahnemann Medical College and Hospital of Philadelphia, 1910; health officer; died in New Haven (Conn.) Hospital May 25, aged 64.

Sutherland, Edgar Lemon, Lynchburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1898; member of the American Medical Association; affiliated with the Virginia Baptist Hospital; died in Willis April 30, aged 74, of injuries received when crushed against a building by a runaway automobile.

Walsh, Thomas Joseph ✠ Buffalo; University of Buffalo School of Medicine, 1902; past president of the Buffalo Academy of Medicine; specialist certified by the American Board of Internal Medicine; formerly on the faculty of his alma mater; fellow of the American College of Physicians; served on the staffs of the Edward J. Meyer Memorial Hospital, Mercy Hospital and the Sisters of Charity Hospital; died May 19, aged 71, of coronary thrombosis.

Warner, William Halsey Alonzo ✠ East Orange, N. J.; Cornell University Medical College, New York, 1902; served on the staffs of St. Michael's Hospital, Newark, Orange Memorial and St. Mary's hospitals in Orange; died May 12, aged 71, of coronary embolism and diabetes mellitus.

Weinberg, Leonard David, New York; New York University College of Medicine, 1942; member of the American Medical Association; certified by the National Board of Medical Examiners; served during World War II; affiliated with Flower and Fifth Avenue Hospitals, Metropolitan Hospital and the Beth Israel Hospital, where he died May 14, aged 30, of torulosis.

Wiley, John Joseph, Philadelphia; Jefferson Medical College of Philadelphia, 1905; on the staff of Jewish Hospital; died May 12, aged 67, of coronary thrombosis.

UNIVERSITY OF MICHIGAN LIBRARIES

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

June 17, 1950.

"The Granny Racket"

Writing to the *British Medical Journal* on April 8, Sir Ernest Graham-Little, M.D. and member of parliament, calls attention to what he terms "a curiously incoherent article" by Sir Heneage Ogilvie, a surgeon, in the same journal two weeks previously. He claims that the provocative title forms part of an attack on Mr. Harold Stassen, president of Pennsylvania University. He points out, "Mr. Stassen is a friend of England who had come here to make an examination for himself of the present position of our National Health Service. He noted particularly the disastrous congestion which had overtaken our hospitals since the passage of the National Health Service Act. He cited as an example an old woman, named by Sir Heneage "Mr. Stassen's Granny," who was suffering from lobar pneumonia and who sought admission to a hospital; no bed could be found for her and she "incontinently died."

A VITAL QUESTION

In his article Ogilvie had maintained that the vital question is not whether the state takes part in the future development of a medical service but, if and when it does so, what part it will take. He maintained that many shut their eyes to facts and imbibed Stassen's articles in the *Reader's Digest* as meat and drink. He said that "Never, Never, Never" in the January issue is based on interviews with discontented doctors and a few slightly inaccurate figures and that "Granny Is Gone" (February) also pays little more than lip service to veracity and encourages Americans to thank God they are not as other men are. It states that large American hospitals which are neither state owned nor limited to paying patients are "in the red," that the poor American is worse off than "Granny," or he gets little unless he pays for it. He cannot get a home nurse at government expense nor unlimited blood transfusions and unlimited chemotherapy, which were available to the poorest in Britain even before 1948.

In his article he further says that it is claimed that 50 per cent of Americans are covered by insurance, whereas a year ago the number was nearer 5 per cent, and even today the number adequately covered is negligible. By adequate is meant cover for all risks for all time. A fit man, he says, can insure against the cost of his first illness but thereafter can reinsure only with difficulty. If really ill he becomes uninsurable. The insured may get the best but may easily get the worst treatment.

He admits that American research leads the world; that the best hospitals, physicians and surgeons are second to none, but that there are also numbers of doubtful clinics with untrained specialists and fake consultants. Books like "Petticoat Surgeon" and others give a glimpse of the chicanery and double dealing to which the sick American is liable. The number of common bile ducts divided every year by incompetent surgeons exceeds those in Britain by a significant margin.

DISASTROUS CONTROL

He maintains that all would agree that the state should promote ideas and methods which advance medical science and make the best treatment available to everyone. How this can be brought about causes inevitable disagreement. Nowhere, he says, is help more needed or control more disastrous than in medicine.

Fifty years ago medicine was limited to clinical methods, treatment to shotgun prescriptions; and surgery to simple tools and some antisepsis. Today exact diagnosis requires a host of ancillary services, a surgical operation many collaborators before, during and after. The high standards demanded are obtainable only in hospitals; more beds are required per capita of population; more expensive drugs and treatment. Philanthropy, he says, can no longer bear the cost—hospitals and research must be maintained by the largest kind of corporate body, either professional or state.

Insurance as an alternative appeals to business instincts, but, he says, the state is the only body that can finance costly research and provide for the destitute and aged. Bureaucracy, however, means interference, both in administration and the spending of money; thence arbitrary standards of value and excellence arise and produce the state "expert," who is apt to be either a civil servant with superficial knowledge, a doctor working office hours and out of touch with practical reality or an opportunist putting his oratorical powers to political use. In Britain the state owns postal, telegraph, broadcasting and transport services and mines, and the difficulty of combining state ownership with efficient management and progress and the avoidance of changing control with every government or a permanent bureaucratic clique must be faced. The American medical profession has the advantage of watching these human experiments and being able to learn from them what is good and what should be avoided. He says that the expense of medical care, education and research being provided from public funds is good, that the waste of money on unnecessary transport, apparatus and hordes of administrators—the latter more than doubling expenditures—is bad. The greatest disaster is loss of freedom for the doctor to follow truth and for the patient to seek help where he has confidence. To preserve these it is essential that matters of medical education, hospital appointments and methods of treatment be decided on by the profession themselves and that private practice must continue.

He finds that a medical service produces an artificiality of grading, that often it does not correspond to a doctor's true worth. Grading is normally attained slowly by character and quality of work and not by the arbitrary selection in a committee. Without the natural selection of private practice all possibility of true comparison has gone.

In common with that of other nations American medicine is at the cross roads, and American doctors can see others proceeding along many paths from that crossing. They are free to choose the good and reject the bad and to present their government with a "fait accompli," of which they can say: "Here is a plan that we, the doctors of America, have devised and tested. It will keep our scientific research in the forefront of world progress, it will allow every man in medicine to find that work for which he is most suited and it will enable every citizen of our great country to get the treatment he requires. We can prove that the cost is less than that of the National Health Service in Great Britain, its benefits are greater and it is more readily adaptable to change. We ask you to take it over, and we will run it for you."

Sir Ernest Graham-Little claims that the author made light of the "Granny" incident as being "due to the confusion inseparable from the inception of the new service. If this contention were valid, there would surely be some diminution of that congestion after 18 months' trial of the service. The facts are different. Six months ago the number on the waiting lists at the London hospitals alone was estimated at 50,000; today that number has doubled. Dr. Gardner, regius professor of

medicine at Oxford University, in a recent address declared that the waiting lists at the Oxford hospitals alone now reach 10,000, and they increase at the rate of 2,000 every year.

"The real explanation of this increase is the fact that the remuneration offered to the general practitioner under the National Health Service Act is so pitifully meager that he cannot make a living unless he takes on a panel of 4,000 plus patients. It must be remembered that under National Health Insurance rule each practitioner's panel was limited to 2,500, but at that time the doctor derived two thirds of his income from his private practice and spent two thirds of his working day on his panel patients. With the present elimination of private practice he is wholly dependent on his capitation grant, the scale of which has suffered a progressive diminution. It has been computed that with the present swollen panels the practitioner cannot give more than three to four minutes to individual patients. Any patient requiring longer consideration is sent to the hospitals, which thus become filled with relatively trivial cases to the exclusion of serious illness. Exactly the same development was noted in the state medical service which New Zealand has enjoyed (?) for the past nine years. In a debate in the House of Representatives some two years ago it was shown that the general practitioner took on so many patients that he could not give more than five minutes to each. The Prime Minister, intervening in the debate, said it reminded him of sheep dipping."

COLOSSAL DISCONTENT

Dr. Walter Asten, a barrister-at-law and family physician, of Bournemouth, England, at the same time writes that he wants "to emphasize the final paragraph beginning with the words, 'the organization of medical services must come, all over the world, and the best people to initiate and develop such a public service are the doctors themselves.' Having regard to the continuing colossal discontent, dissatisfaction and wild expenditure entailed by the National Health Service after nearly two years of its administration, may I suggest that without delay a gigantic agitation be instituted to bring about a complete transfer of the organization and development of a public medical service to the doctors themselves through the British Medical Association? Surely it is not too late."

STUDY BY AMERICAN DOCTORS

Dr. E. C. Warner, a consultant in internal medicine in London, maintains that, as a result of study by a number of distinguished physicians and surgeons from America of the nationalized health services in Britain and Western Europe, "they have returned to their own country determined to resist such a plan in the United States. They know that once they start to bargain and to collaborate with politicians their fight for professional freedom is lost. They have probably read Dr. Guy Dain's statement (when he was the chairman of the Council of the British Medical Association) that 'we can go into this new service and shape it in accordance with our ideals' as well as the promise of the Minister that 'the Minister will welcome the help of the profession in drawing up an Amending Act,' and they have realized that the politicians have taken care that neither of these has been fulfilled.

"Much of our clinical freedom and our standing as members of the greatest profession of all has already been sacrificed to a political dogma." He calls attention to the closing words of a leading article in the *British Medical Journal* of March 25, "The G. P. at the Crossroads," in which the final words are: "Yet today the young doctor is turning away from it (general practice) and the old doctor is beginning to despair of it. Causes of this must be quickly determined and quickly remedied if medicine is to remain a profession and not become just a mere assortment of technical skills.' Medical and surgical care are first of all in the hands of the G. P.'s, and the vast majority of patients who go through their hands do not need a hospital bed. The basic need is not for more hospital beds but for an improvement in the general practitioner service. How is this possible at the present time, when the family doctor is so grossly overworked, underpaid and underequipped that his standards of work are steadily deteriorating? If the reverse held true, if the best type of man were recruited into general practice and if family doctors could improve the service they give to each patient, the bad sorting of cases and the unnecessarily large number of patients sent to the hospital would greatly diminish. It is my belief that, if the general practitioner were given the help and encouragement he so badly needs, the rising cost of the service (which is chiefly due to the hospital services) would soon be checked and then would fall."

He states that it may well be the aim of the welfare state to provide cover for all risks for all time but asks, "Is this not the very reason that our N. H. S. practitioner service is so overburdened that those patients in special need of the service are suffering at the hands of those who make unnecessary and even ridiculous demands on it? We all agree that the poor should never be denied medical care on account of expense; but each patient must accept a sense of responsibility toward the service, and this will come only when he has to bear the day to day costs of minor ailments and is given a cover against more serious or catastrophic illnesses.

"All who love their profession will agree with Sir Heneage's two requisites for freedom, the second of which is 'private practice must continue.' Are these considerations not some of those which have weighed most heavily in deciding that the insurance system against serious illness is the one which appeals most to the Americans' love of freedom and efficiency? Dr. Walter B. Martin, who led the delegation from the A. M. A. to investigate the workings of our National Health Service Act, assured me that today 105 million of the 150 million population of the United States are now covered by sickness insurance schemes of one sort or another.

"In conclusion, I do ask most sincerely that we do not make fun of our American colleagues by pointing the finger of ridicule at them in articles under such titles as 'The Granny Racket.' They are fighting to maintain their professional freedom, having seen how much we in this country have already lost."

ITALY

(From a Regular Correspondent)

FLORENCE, April 30, 1950.

The Problem of Heredity

In a report to the Medicosurgical Society of Pavia, Prof. A. Giordano presented data concerning the problems of heredity in such diseases as anencephalia, encephalocele associated with splanchnic cysts and polycystic kidney. He pointed out that the existence of mutation is being confirmed in an increasing number of cases. Many hereditary diseases, due to a dominant autosomic gene (chondrodystrophia) or to a sex-linked factor (hemophilia), decrease the fertility of the affected persons to such a degree that their incidence in successive generations would be conspicuously reduced if the disease would not appear by mutation in other strains, thus maintaining an almost constant frequency. In discussing "disencephaly" (primitive and idiopathic congenital malformations of the laminae medulares and of the spinal cord) in the light of present knowledge about mutation, he observed that this condition—from the milder cases of the spina bifida to the severer ones such as encephalocele or anencephalia—may be considered as mutations.

The investigations of Capporota carried out in the Institute of Pavia, those of Puntus based on material from the University of Milan, and of J. A. Brook and S. Rayner, from the department of human genetics of the University of Lund, favored the theory of heredity. The investigations of Penrose from the Galton Laboratory of the University of London, carried

UNIVERSITY OF MICHIGAN LIBRARIES

out on 135 family strains of persons with hydrocephalus and anencephalia, did not support the theory of heredity. Penrose found etiologically significant the preponderance of anencephalia among the first born, without considering, however, the abortive offspring among the siblings of the anencephalic persons, which, according to Brook and Rayner, are more numerous than among the siblings of healthy persons.

The prevalence of female anencephalic persons (4 to 1) may have a plausible explanation in the greater intrauterine mortality of the male sex. In favor of the heredity of encephalocele, which is considered a severe "disencephaly" although of lesser degree than that of anencephalia, is the occurrence of a syndrome described by Gruber in 1934 and defined by Giordano. In this syndrome the association of hereditary factors determining malformation, like polycystic degeneration of the parenchyma (kidneys, liver, pancreas) or polydactylism, is significant.

The speaker discussed also some anatomic observations with regard to a family strain which presented bilateral polycystic kidneys and an interesting case of "splanchnocystic disencephaly," the thirty-third case reported in literature. The lack of any symptom of syphilis in the majority of cases of this syndrome and the precociousness of the embryonal period diminishes and perhaps annuls the importance of syphilis as a direct etiologic blastophthoric factor. Thus the theory of syphilitic infection as a factor in mutation becomes completely hypothetic.

Italian Society of Anesthesiology

The Naples branch of this Society has held important meetings under the chairmanship of Professors Imperati and Dominici. Dr. D'Errico discussed intratracheal anesthesia with nasal intubation. He concluded that it is preferable to oral intubation in some operations (such as those on the oral cavity, head and neck, which require mild anesthesia) in the presence of particular pathologic conditions of the patient which make oral intubation impossible or inadvisable, such as temporomandibular ankylosis or oral sepsis. The contraindications of nasal intubation can be absolute and relative. Among the former may be obstruction of the nasal passages, the need for operation on both nasal cavities and ankylosis of the cervical vertebra which prevents the proper deflection of the head. Among the relative contraindications are intrathoracic operations and very young patients, less than 6 years of age.

Nasal intubation can be performed under superficial or deep anesthesia. The first is more difficult and requires proper position of the patient's head, the addition of carbon dioxide to the anesthetic mixture to increase the depth of the respiratory movements, agility and precision. With care the intubation may be successful without direct vision in about 90 per cent of the cases; in the remaining 10 per cent it should be completed by use of the laryngoscope.

With regard to the administration of anesthesia for intrathoracic operation, the speaker pointed out that the anesthetist must control (1) the progress of the anesthesia, (2) pulmonary ventilation, (3) tracheobronchial secretion and (4) cardiovascular function.

General anesthesia presents great advantages over various forms of peripheral anesthesia. Intratracheal technic at present is the most suitable, and the use of curare may contribute to its success. Drs. Ruggiero and Aghina reported the results on the use of *d*-tubocurarine chloride in thiopental sodium. In 25 abdominal operations, anesthesia was maintained between the first and second phases of the third stage, obtaining excellent muscular relaxation. Respiratory paralysis was never observed. He kept oxygen ready for emergency administration.

Drs. Lezza and Bracale reported on an additional 500 cases of closed anesthesia, which they administered from 1947 to date. The results obtained showed the advantages of the system compared with other technics of anesthesia by inhalation. D'Errico and Sanguigno discussed the recent organization of a blood bank in the surgical clinic of Naples and the activity of the blood plasma collection center organized in Naples in May 1948.

BELGIUM

(From a Regular Correspondent)

LIÈGE, May 27, 1950

Hospital Problem

The data published here are taken from a memorandum prepared by the Ministry of Public Health and presented to the Center of Social Studies of Liège.

There are at present in Belgium 373 general hospital establishments (hospitals and clinics), of which 112 are public and 261 privately operated, with a total number of 28,950 beds, which represents 3.4 beds for every 1,000 inhabitants. To these general establishments there must be added: (*a*) 12 public and 28 private institutions for mental patients, (*b*) 4 public and 31 private institutions for abnormal children and (*c*) 2 public and 14 private establishments for the deaf and dumb and for the blind. On the whole, there are too few hospitals and too few beds. There should be at least 9 beds for every 1,000 inhabitants, whereas there are only 6.6 in Belgium. Sweden has more than twice this figure (13.5), and the United States will soon have 11.58 per thousand.

Many of the buildings are old and dilapidated. This state of affairs is explained by the destructions during a quarter of a century by two devastating wars, as well as the insufficient effort by the public authorities. "De Groote's plan" proposes the investment of 1,500 million francs in 10 years, i. e., 150 million per year, to improve the hospital facilities of the country. This effort, however, is still far from adequate.

Early Diagnosis of Cervical Cancer

Dr. Tassilo Antoine of Vienna presented to the Belgium Society of Gynecology and Obstetrics a well documented report dealing with the early diagnosis of cancer of the uterine cervix. He showed that at present the surgical and radiologic methods of treatment are too well known for this aspect of the problem to justify the hope for important improvements. Therapeutic results may be improved by earlier treatment, which is dependent on early diagnosis. The procedures best known for this particular purpose are Schiller's test using alcoholic solution of iodine, cervical smears (Papanicolaou's test) and colposcopy with cervical biopsy. The author, having great experience in the last procedure, has perfected this method. He built a colposcopy apparatus to which a microscope is attached permitting examination of the uterine neck with considerable magnification. This method is especially useful in the diagnosis of the preinvasive stages of cervical epitheliomas.

Student Health

Student health was the topic of a session of the Belgian Association of Social Medicine held at the Institute of Social Medicine, University of Brussels, with the conclusion that the academic authorities must protect the health of the students by making preventive medical examination compulsory, by organizing health clinics, dental clinics and infirmaries for neurologic disorders. They should also, it was concluded, create housing for students, students' restaurants, centers of physical education and recreation, a placement bureau, social service and a committee for mutual assistance. First year students should be given lectures on the principles of physical and mental hygiene. The programs and schedules should be planned so as to avoid overwork and to reserve a sufficient number of hours for meals, exercise and relaxation.

CORRESPONDENCE

PITUITARY ADRENOCORTICOTROPIC HORMONE

To the Editor:—The following statement has been prepared for THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION because of the large number of inquiries from physicians, clinics and hospitals as to the distribution of pituitary adrenocorticotropic hormone (ACTH) as the quantity available becomes larger. We would appreciate the cooperation of THE JOURNAL in informing the medical profession as to the situation; this statement is offered only for this purpose.

In formulating a policy regarding the distribution of ACTH and education in its use, the company has consulted with an advisory committee, which included the following physicians: Dr. George Thorn, Harvard Medical School, Boston; Dr. J. S. L. Browne, McGill University, Montreal, Canada; Dr. Robert Loeb, College of Physicians and Surgeons, New York; Dr. Walter Bauer, Harvard Medical School, Boston; Dr. A. McGehee Harvey, Johns Hopkins University, Baltimore; Dr. Randall Sprague, Mayo Clinic, Rochester, Minn.; Dr. Philip Hench, Mayo Clinic, Rochester, Minn.; Dr. Lowell Coggeshall, dean of the Medical School, University of Chicago, Chicago; Dr. Duckett Jones, Whitney Foundation, New York; Dr. Laurence Kinsell, Highland-Alameda County Hospital, Oakland, Calif.; Dr. W. Paul Holbrook, Tuscon, Ariz.; Dr. Jerome Conn, University of Michigan, Ann Arbor, Mich. and Dr. Allen Kenyon, University of Chicago.

Knowledge of adrenal physiology is both complex and new. In consequence, the medical advisory committee believes that new workers in the field should have some knowledge of adrenal cortex physiology and some orientation in the use of ACTH before undertaking studies with it in human beings. In this situation Armour Laboratories believes that its role is one of cooperation in every way possible in the development and dissemination of such information.

The program as now outlined is as follows:

First, larger supplies of ACTH will make possible distribution to additional institutions. Many universities and medical schools are already using the hormone, and it will be made available now to all medical schools not now receiving it where trained men are available for supervision in its use. We will then include teaching hospitals associated with medical schools, those accredited for residency and intern training, and, finally, general nonteaching hospitals as rapidly as expansion of production permits.

Second, a number of universities and teaching hospitals plan two day orientation courses in adrenal cortex physiology and the use of the hormone in human beings to familiarize men without experience in its use and misuse. Their locations will be announced later, when the program is complete.

Third, it has also been suggested that a committee be set up in each hospital to pass on research projects in the institution and on the use of ACTH in individual cases in the hospital.

Fourth, it is desirable that at least one man in each hospital have some experience with ACTH, and, when this is not the case, a staff member should be encouraged to attend one of the teaching courses to be established in various parts of the country and then be in a position to supervise the use of the hormone in the institution.

Fifth, the schools and hospitals planning the orientation courses hope to attract men from teaching institutions, especially in order that the basic information may be disseminated as rapidly as possible. One school is developing a motion picture film on adrenal cortex physiology and ACTH to further accelerate this educational program.

Finally, it is the desire of the Armour Laboratories to expand the distribution of the hormone as rapidly as possible, consistent with availability, with due regard for objective medical observation and safety to the patient. It is hoped that the hormone can be made available to most hospitals within the year and generally available to the medical profession at the earliest possible date.

JOHN R. MOTE, M.D.,
Medical Director,
Armour Laboratories, Chicago.

CORTISONE

To the Editor:—As the chief manufacturer of cortisone, Merck & Co., Inc., desires to present to the medical profession at this time a brief statement on (1) the current status of production and supply of cortisone, (2) the present state of knowledge of its action and uses and (3) the recently proposed educational program for the extension of information on adrenocortical and related compounds. The concept of this educational program has been reviewed by and has the approval of the following clinicians and investigators whose counsel Merck & Co., Inc., has sought: Drs. Walter Bauer, Arthur L. Bloomfield, Richard H. Freyberg, Tinsley R. Harrison, Philip S. Hench, W. P. Holbrook, Chester S. Keefer, Robert F. Loeb, Carl V. Moore, Hugh J. Morgan, Tom Spies, George W. Thorn and M. M. Wintrobe.

1. Production of cortisone by Merck & Co., Inc., is increasing steadily. The supply is now more than sufficient to cover all the needs of clinical and other research.

2. Cortisone has now been under active investigation by more than 900 clinicians in this country, as well as by a considerable number of investigators in the fundamental medical sciences. A large body of information has been accumulated on the biologic action and therapeutic uses of this agent.

3. The suggestion has been made recently by a number of leading investigators that short intensive courses of instruction be given by qualified teaching institutions throughout the country in order to extend more widely the essential information required for safe administration of this compound. Such courses, consisting of one or two days of intensive instruction and demonstration, have already been planned at certain institutions. Some of these courses will be given within the next few weeks and others later in the summer. Announcements of these will be made by the institutions themselves at as early a date as possible.

The extension of accurate knowledge of the properties and clinical uses of cortisone is essential, and Merck & Co., Inc., wishes to express its desire to collaborate and assist in this program to the fullest extent possible. During the four years since cortisone was first synthesized in our laboratories, and the period of almost two years since it was first used in the treatment of rheumatoid arthritis at the Mayo Clinic, the company has endeavored to assemble the basic scientific knowledge and the data derived from clinical experience with this compound. We will consider it a privilege to make available a comprehensive summary of this information to physicians participating in the forthcoming educational programs.

J. M. CARLISLE, M.D.,
Medical Director,
Merck & Co., Inc., Rahway, N. J.

UNIVERSITY OF MICHIGAN LIBRARIES

Medical Motion Pictures

Femoral Hernia in the Female . . . in the Male. 16 mm., color, silent, 436 feet (1 reel), showing time eighteen minutes. Prepared in 1949 by Raymond W. McNealy, M.D., Chief Surgeon, Wesley Memorial Hospital, Associate Professor of Surgery, Northwestern University Medical School, Chicago. Produced by and procurable on rental or purchase from Mervin W. La Rue, Inc., 159 East Chicago Avenue, Chicago 11.

This film shows two identical operations: the first is the repair of a femoral hernia in a female and the second in the male patient. The technic used consists of a longitudinal incision made over the femoral canal parallel to the femoral vein. The sac is dissected free and the neck is isolated. The sac is opened, the adherent omentum divided and the stump replaced into the peritoneal cavity through the neck of the sac. The hernial sac is then removed and the neck transfixed with silk. In the placing of this suture, care is shown to be sure that a loop of bowel does not slip down into the neck. The ligated sac is then replaced under Poupart's ligament and this ligament sutured to the pectinèus fascia with two interrupted sutures.

The anatomy encountered in the inguinal region is not well shown. No history is given on either patient. The anatomy and technic in a procedure of this type do not vary enough to justify a duplication of operations as shown in this production.

This film could be recommended as an adjunct to a lecture on hernias and could be used to demonstrate the technic of repairing femoral hernias to medical students, interns, residents and surgeons. The photography is excellent.

Malnutrition in the Hospital Patient. 16 mm., color, sound, showing time 30 minutes. Prepared by Eugene F. DuBois, M.D., Professor of Physiology, Cornell University Medical College, New York, Robert Elman, M.D., Professor Clinical Surgery, Washington University, St. Louis and Herbert Pollack, M.D., Associate Professor for Metabolic Diseases, Mount Sinai Hospital, New York. Produced in 1949 by E. R. Squibb and Sons in cooperation with Mount Sinai Hospital, New York and Barnes Hospital, St. Louis. Procurable on loan from E. R. Squibb & Sons, 745 Fifth Avenue, New York 22.

Hospitalized patients, particularly surgical patients, require special attention to nutritional needs before (whenever possible), during and after surgical procedures. The message in this motion picture is carried largely by Dr. Robert Elman and Dr. Herbert Pollack. The film moves with reasonable speed, but it is largely an exposition of the opinions and technics of the principal characters. It is actually an illustrated lecture in which several persons take part.

A surgical patient is brought to the hospital; his nutritional needs are discussed, and methods of meeting these nutritional needs are considered. The problems of getting adequate food into a patient are graphically illustrated; the patient is operated on and returned to his room. This presents an opportunity for Dr. Elman to consider with the intern the nutritional needs during the postoperative period and in convalescence.

The scientific data is presented by three authorities in the field. The film is suitable for such audiences as medical students, interns and general practitioners. Its teaching value is reduced considerably by the great amount of conversation. More of the subject matter discussed could have been illustrated to advantage. As a film production, this picture is not well done. The photography is fair, and in a few sequences the narration is poor.

Cardiotomy for Removal of Bullet Embedded in Right Ventricle. 16 mm., color, silent, 268 feet, showing time eleven minutes. Prepared in 1949 by Raymond W. McNealy, M.D., Chief Surgeon, Wesley Memorial Hospital, Associate Professor of Surgery, Northwestern University Medical School, Chicago. Produced by and procurable on rental or purchase from Mervin W. La Rue, Inc., 159 East Chicago Avenue, Chicago 11.

This motion picture illustrates the technic for removal of a bullet from the right side of the heart. The procedure used is an extrapleural approach through an incision just to the left of the sternum, extending along the left costal margin. The pericardium is exposed by transecting several cartilages. A small incision is made in the pericardium, exposing the right ventricle. A traction suture is placed at the apex of the heart in order to control motion. Two sutures are placed through the myocardium on each side of the bullet before the ventricle is opened. It is impossible to say from the film whether the bullet was free in the ventricle or was lodged in its wall. The bullet is readily extracted by means of a forceps. After incision into the myocardium, the field is almost completely obliterated by bleeding. The incision in the myocardium is closed with interrupted sutures of silk and aided by a muscle graft. When the pericardium is opened, there is no evidence of pleural effusion, nor could any adhesions be seen.

No clinical history is given, nor is the point of entrance of the bullet demonstrated. The indications for removal of the bullet are not given, nor are there roentgenograms showing the location of the bullet. Nothing is said concerning preoperative preparation of the patient. A considerable amount of scar and certainly pericardial adhesions will form as a result of the surgery. One questions whether there is real indication for removal of the bullet. At no time is any attempt made to wall off the skin, nor are important anatomic landmarks adequately pointed out.

This film could be used as an adjunct to a lecture on the treatment of foreign bodies in and about the heart. It would not be of much value in the teaching of medical students, interns or residents. The photography is excellent.

Mobilization of the Human Body. 16 mm., black and white, sound, showing time 20 minutes. Prepared in 1949 by Evelyn Loewendahl, M.A., R.N.Ph.T., and Harvey E. Billig Jr., M.D., F.I.C.S., Medical Director, Billig Clinic, Los Angeles. Produced by Centaur Productions, Los Angeles. Procurable on rental or purchase from The Billig Clinic, 536 South Hill Street, Los Angeles 14.

This presentation of the authors' theory consists of sequences showing action photographed with a living human model and of movements produced in mechanical models representing the bones, muscle, ligaments and tendons of the body. It introduces the concept that faulty posture can result in an undesirable distribution of strains, a shortening of ligaments and tendons and an irritation of nerve trunks resulting in pain. Various manipulations are then shown which are designed to increase the range of motion of various parts, such as bending forward to touch the floor and the side to side rotation of the head. The proposition that these stretching exercises, first passive and later active, will relieve certain aches and pains is stated but not proved; at least the satisfactory evidence could have been indicated.

The film is of interest as an assertion of the value of certain manipulations but is a most superficial introduction to a complex subject and will be of value only to physiatrists wishing to evaluate the contentions of the authors. It is not recommended as a teaching film and would be of no interest to the general public.

The photographs of the models are good. The animation is fair and the narration poor.

Surgical Treatment for Patent Ductus Arteriosus. 16 mm., color, sound, showing time 11 minutes. Prepared by George H. Humphreys II, M.D., Professor of Surgery, College of Physicians and Surgeons, Director of Surgical Service, Columbia-Presbyterian Medical Center, New York. Produced in 1950 by and procurable on rental or purchase from Sturgis-Grant Productions, Inc., 314 East Forty-Sixth Street, New York 17.

This film illustrating the surgical treatment of patent ductus arteriosus in a child 3½ years of age is part of a planned series on congenital heart disease.

The surgical approach is made through the anterolateral chest wall at the level of the second interspace. The ductus is ligated at each end, doubly clamped and divided. A second ligature, placed under each clamp, secures the stumps. The anatomy of the region around the ductus is demonstrated.

The surgical procedure for a child of this age is satisfactory. However, in older children, especially those in their teens, it might be difficult, when the ductus is short, to insert two purse string sutures and then apply the clamps and divide the duct. In other patients the ductus may be short, the application of this technic in such patients might lead to troublesome hemorrhage.

The patient is shown several months postoperatively to be much more active; no murmur is heard, and the cardiac silhouette on the roentgenogram is nearly normal.

Addition of the sound track to the film adds a great deal in the presentation of the classic "humming top" murmur. The subject is well presented and the material well organized. This production shows evidence of preplanning. This motion picture is recommended for showing to general practitioners, residents, interns and medical students on the basis of diagnosis and to surgeons and specialists interested in this phase of surgery. The photography and narration are excellent.

Bureau of Medical Economic Research

MEDICAL ECONOMIC REVIEWS AND ABSTRACTS

Prepared by the Staff of the Bureau of Medical Economic Research

Public Health Statistics. By Marguerite F. Hall, M.A., Ph.D., Associate Professor of Public Health Statistics, School of Public Health, University of Michigan, Ann Arbor, Mich. Second edition. Cloth. Price, $7.50. Pp. 441, with 41 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33d St., New York 16, 1949.

In an introductory chapter, the author presents a short history of the counting of populations and of the growth of the United States Public Health Service. She lists the three fundamental elements of the statistical method as the collection of data, the summarization of data, and the analysis, interpretation and generalization of data.

Chapter 2, "General Principles of Computation and Handling of Mass Data," is concerned with significant figures, with statistical errors and with the punched-card method for recording data. Chapters 3 and 4 are concerned with the presentation of data in tabular and graphic form.

The next three chapters treat population data. Discussions on the collection of and sources of error in population data; the composition, growth and estimates of population, and the derivations of the various standard millions of population are included.

Chapter 8, "Vital Events," describes the sources of data on vital events, the types of errors found in source data, improvements needed in the collection of vital facts, and the major sources of published data for population and vital facts. A short summary of the general contribution of these vital facts in measuring health progress and in defining each of the continuing health problems is included.

Five chapters on rates are devoted to the methods of computation of the natality, stillbirth, morbidity, marriage, divorce and infant, maternal and general mortality rates, and of the measures of variation and trends in these rates. This is followed by a discussion entitled "Ratios and Index Numbers." Chapter 14 discusses the construction of an abridged life table, while chapter 15 gives three illustrations of the application of the life table concepts.

The remaining chapters deal with statistical theory—"Measures of Variability," "Measures of Relationship and Trend," "Theory of Probability; Point Binomial; Normal Curve," "Measures of Reliability" and "Prerequisites to the Application of Statistical Methods." The author appraises the degree of specialized training in statistical methods required for public health administrators: ". . . relatively elementary statistical techniques have been presented in the hope that workers with little or no formal training in mathematics may achieve command over these simple statistical methods which aid in clear thinking and in the analysis of observed data" (page 393).

The computations for two abridged life tables are presented in appendix A, while in appendix B is included a reference list of the important formulas used as statistical measures and used in estimating populations and in computing mortality, natality and morbidity rates.

This book might better be called "Principles of Vital Statistics for Public Health Workers," as it is concerned chiefly with data on morbidity, mortality, natality and population rather than with statistics on nutrition, sanitation, industrial hygiene, maternal and child health problems and other fields of interest to public health workers. The author herself mentions that "the data in public-health statistics include not only the vital events of life, the data of vital or biostatistics, but also facts which influence these events" (page 11).

The author makes several references to the reporting of stillbirths. "Until recently, stillbirths have been reported as births and deaths" (page 146). "Most states have adopted a stillbirth certificate, but a few states still report stillbirths as births and deaths" (page 149). According to "Vital Statistics Special Reports" (vol. 25, No. 17, Feb. 12, 1947, National Office of Vital Statistics, page 315), "While there has been comparatively little disagreement concerning criteria for deciding whether a fetus is alive or dead at birth, the fixing of the minimum gestation age of stillbirths for registration purposes has proved to be a very difficult problem." By 1944, the minimum gestation period specified in the stillbirth definition in four areas was twenty-eight weeks to seven months; in nineteen areas it was twenty-two weeks, five and one-half months or six months; in twenty-six areas it was twenty weeks, advanced to the fifth month or fifth month, and in one area it was "any product of gestation." Thus, the statistical confusion is between a stillbirth and a miscarriage rather than between a stillbirth and a live birth of a short-lived infant.

The author defines the stillbirth rate as the "ratio of the number of stillbirths to the number of live births per 100 for the given year" (page 220). In official vital statistics reports this is referred to as the stillbirth ratio; the stillbirth rate would be computed with total births as the denominator. The author also speaks of a birth mortality index as "the sum of the stillbirth and neonatal rates." "As a probability, the birth mortality index measures the chances in 1,000 live births that an infant has in being born alive and then surviving the first month of life" (page 223). A correct index would have stillbirths plus neonatal deaths as a numerator and total births as a denominator to indicate the probability of a baby's being born dead or being born alive but dying during the first month of life. Certainly the stillbirth rate, computed from stillbirths as a numerator and live births as a denominator, could not measure the probability of an infant's being born alive.

In speaking of sampling errors, the author states: "Even with the data of vital statistics, the rates are derived from samples only, since all of the events are never reported and all of the population will never be accurately and completely counted or estimated. Statistically, rates are derived from samples, and as such are subject to sampling errors" (pages 234-235). What the author does not say is that errors in vital statistics are results of reporting errors, not sampling errors, and that underregistration or incomplete count has no relation to standard errors. Standard errors in the field of vital statistics should be determined for data derived from a small sample area used in computing estimates for a larger area. Then—and only then—would the data be from a sample and subject to sampling errors when applied to the universe. Except for reporting errors, national vital statistics data definitely pertain to the universe.

The author speaks of the variations of rates from year to year as also being subject to standard errors. Some economic statisticians object to the use of standard error calculations for any time series data. When time is a variable, the population does not remain constant but is an everchanging group. If one uses the sampling error concept for data of this type, of what population are the data a random sample?

This misapplication of the standard error concept and other misinterpretations of standard statistical methodology could be corrected by a careful revision. If this were done, the book would become an even more valuable tool for all persons who record and use vital statistics.

UNIVERSITY OF MICHIGAN LIBRARIES

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various locations, July 21. *Oral.* Chicago, Oct. 8-11. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written.* Various locations, Sept. 14. *Oral.* Detroit, Oct. 20-22. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 16. Asst. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Chicago, Oct. 1950. Applications no longer accepted. Sec., Dr. W. J. German, 789 Howard Ave., New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various Centers Jan. 5-6, 1951. San Francisco, March 11-15; New York, May 31-June 4. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 25-26. Final date for filing applications is Aug. 15, 1950. Sec., Dr. Harold A. Sofield, 122 South Michigan Avenue, Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, October. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: St. Louis, Oct. 13-14. Sec., Dr. Robert R. Moore, 507 Euclid Ave., St. Louis 10.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Chicago, Oct. 13-15 and Boston, Dec. 1-3. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Oral and Written.* Boston, Aug. 26-27. Final date for filing applications is April 1. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Next examination, December 1950. Final date for filing applications is Sept. 1.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, Oct. 25. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 10-14, 1951. Final date for filing applications is Sept. 1, 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 21.

BOARDS OF MEDICAL EXAMINERS

ALASKA: * Juneau, Sept. 5. Special examinations given on application. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

ARIZONA: * Phoenix, July 22. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

CALIFORNIA: *Examination, Written.* Los Angeles, Aug. 21-24; Sacramento, Oct. 16-19. *Examination, Oral and Clinical for Foreign Medical School Graduates.* Los Angeles, Aug. 20; San Francisco, Nov. 12. *Reciprocity, Oral Examination.* Los Angeles, Aug. 19; San Francisco, Nov. 11. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

CONNECTICUT: * *Examination.* Hartford, July 11-12. Sec. to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, July 11-12. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: *Examination.* Dover, July 11-13. *Reciprocity.* Dover, July 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

HAWAII: *Examination.* Honolulu July 10-13. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

IDAHO: Boise, July 10. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

MAINE: *Examination and Reciprocity.* Augusta, July 11-12. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: *Examination.* Boston, July 11-14. Sec., Dr. George L. Schadt, Room 37, State House, Boston 33.

NEVADA: *Endorsement.* Carson City, August 7. Sec., Dr. George H. Ross, 112 Curry Street, Carson City.

NEW HAMPSHIRE: Concord, Sept. 13. Sec., Dr. John Samuel Wheeler, 107 State House, Concord.

NEW MEXICO: * Santa Fe, Oct. 9-10. Sec., Dr. Charles J. McGoey, Coronado Building, Santa Fe.

NORTH DAKOTA: *Examination.* Grand Forks, July 5-7. *Reciprocity.* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OREGON: * *Examination.* Portland, July 6-8. *Endorsement,* Portland, July 28-29. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July 11-14. Act. Sec., Mrs. Marguerite G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, Sept. 5. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination.* Providence, July 6-7. Sec., Mr. Thomas B. Casey, 366 State Office Building, Providence.

SOUTH DAKOTA: * Sioux Falls, July 18-19. Sec., Dr. C. E. Sherwood, 300 First National Bank Bldg., Sioux Falls.

WASHINGTON: * Seattle, July 17-19. Director, Department of Licenses, Mr. Edward C. Dohm, Olympia.

WEST VIRGINIA: *Examination.* Charleston, July 10-12. Sec., Dr. N. H. Dyer, Capitol Bldg., Charleston.

WISCONSIN: * Milwaukee, July 11-13. Sec., Dr. C. A. Dawson, River Falls.

* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: *Examination.* Juneau, last week in August. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

COLORADO: *Examination.* Denver, Sept. 13-14. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 3.

FLORIDA: Jacksonville, Nov. 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, July 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor, Oct. 13-14. Sec., Miss Eloise LeBeau, 101 North Walnut Street, Lansing 15.

NEBRASKA: *Examination.* Omaha, Oct. 3-4. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Building, Lincoln 9.

NEW MEXICO: *Examination.* Santa Fe, Sept. 17. Sec., Mrs. Marguerite K. Cantrell, Box 1522, Santa Fe.

OKLAHOMA: *Examination.* Oklahoma City, Sept. 15. Sec., Dr. Clinton Gallaher, 813 Braniff Building, Oklahoma City.

RHODE ISLAND: *Examination.* Providence, August 9. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Building, Providence.

TENNESSEE: *Examination.* Memphis, July 7-8. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

TEXAS: *Examination.* Austin, October. Sec., Brother Raphael Wilson, 306 Nalle Building, Austin.

WASHINGTON: *Examination.* Seattle, July 12-13. Director, Department of Licenses, Mr. Edward C. Dohm, Olympia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Zoning Regulations: Use of Physician's Home in Connection with Preparation of Syndicated Medical Column for Newspapers.—The plaintiff, City of Beverly Hills, filed a suit to enjoin the defendant physician from using his home in a residential zone for the purpose of writing a syndicated medical column and answering questions relating thereto. From a judgment in favor of the physician, the plaintiff appealed to the Supreme Court of California.

An ordinance of the city of Beverly Hills prohibits the establishment or conduct of any business in Zone R-1.5, classified as residential. The word "business" is defined as the purchase, sale or other transaction involving the handling or disposition of any article, substance or commodity for profit or livelihood, or the ownership or management of office buildings or offices.

The defendant, a licensed physician, is the author of a syndicated medical column devoted to a discussion of health problems. In the article he offers free, or for the 10 or 25 cent cost of printing and mailing, various pamphlets containing further information on subjects discussed. Each day he receives one mail bag of requests for pamphlets and sends out daily one mail bag of pamphlets which aggregate about 150,000 pamphlets annually. The dictation and writing of his syndicated article and the receipt and mailing of pamphlets are conducted with the help of secretaries in a room over his garage which is fitted with shelves, filing cabinets, desks and typewriters. The total annual receipts for the requested pamphlets amount to approximately $16,400, and the total annual printing, mailing and salary costs exceed that sum by about $300. These activities, as conducted by the defendant, do not interfere with the use or appearance of his home or premises as a residence, nor do they affect the residental or esthetic character of the district.

The plaintiff conceded that the defendant's writing of his syndicated column is not prohibited by the use restrictions of the ordinance but contended that the additional activities amount to the conduct of a publishing business and the sale or other transaction involving the handling or disposition of a commodity and that such activities are in violation of the ordinance even though no profit is derived or expected therefrom.

Whether the questioned activities amount to the conduct of a business depends on the adopted definition of that word and the primary intent of the zoning restrictions. Obviously, said the Supreme Court, the conduct of industry pursued for profit was prohibited because of the general tendency to interfere with the residential character assigned to the district. The zoning restrictions are intended to retain the highest possible residential and esthetic value to the property owners and the district.

They are general protective measures for the benefit of the residents of the district and of the community as a whole.

Continuing, the Supreme Court said that unquestionably an author may answer his mail and include requested literature. Here the mailing of pamphlets is merely incidental to the writing and publication of the syndicated article, which is conceded to be a permissive use. The pamphlets are not independently advertised, nor is the defendant in the business of publishing or selling the pamphlets at a profit. His livelihood is derived from the authoring of the syndicated articles. It is not contended that the activities interfere with the general character and esthetic harmonies of the district. It must follow, said the Supreme Court, that the defendant is not conducting a business within the meaning of the ordinance.

Furthermore, continued the Supreme Court, assuming that there is involved the sale or handling of a commodity although no profit is derived or expected, or that such activities constitute a nonresidential and prohibited use, the question then is whether the defendant could be deprived of the right to pursue on his premises activities incidental to an unrestricted use when such activities do not interfere with the primarily residential character of the district or affect the esthetic values sought to be preserved. The question may be largely one of degree, the court pointed out. On the record, the ordinance may not operate so as to deprive the defendant of the normal activities incidental to a use not prohibited by the ordinance. The correct answer is indicated by the present factual situation. Whether that condition may conceivably be affected by extensive future increase in the volume of activity in connection with the defendant's proper use of his residence premises is not now a matter for consideration. Application of zoning restrictions to particular facts is subject to investigation by the courts, and each case is determinable on its individual merits.

Accordingly the judgment of the trial court in refusing to enjoin the defendant physician from his use of his residence premises was affirmed.—*City of Beverly Hills* v. *Brady, 215 P. (2d) 460 (Calif., 1950).*

Malpractice: Roentgen Ray Burns; Res Ipsa Loquitur.—This was an action to recover damages alleged to have been caused by the malpractice of the defendant physician. From a judgment for the defendant, the plaintiff, administratrix of the estate of her deceased husband, appealed to the Supreme Court of Michigan.

The deceased had a great number of warts on his right foot, and he went to the defendant physician for treatment. Many roentgen exposures were used during the course of the treatment, and it is the contention of the plaintiff that her husband's injuries and subsequent death were caused by roentgen ray burns resulting from overexposure in point of time, overexposure in point of frequency and overexposure by angulation of the rays. The defendant urged that his conduct or acts in treating the deceased can be measured only by medical or expert testimony, that the plaintiff has the burden of showing by expert witnesses either that what the defendant did was contrary to the usual and ordinary practice of physicians in similar communities or that he omitted to do something that was ordinarily done. The plaintiff failed to produce such evidence but contended that express testimony of negligence was not necessary.

At the trial, the defendant, who was called as an adverse witness by the plaintiff, described his treatment of the deceased as follows: "The first treatment consisted of placing a small piece of lead foil, with a hole in the center of it just the size of the wart or slightly larger, but almost the same size as the wart, over the wart, and this square foil covered an area of about 4 inches square and just the wart exposed and then this sheet, this small sheet of lead foil was covered over with a larger sheet of lead foil and the object, of course, of the larger sheet is to protect the skin beyond the small sheet from any stray rays that may come from the x-ray and then the x-ray machine was adjusted to give out a voltage of 45,000 volts, which is a low voltage, and the one I always have used for wart treatment, and then another adjustment on the machine was set, so that a current of 5 milliamperes, would flow through the tube and the x-ray tube was set a distance of 8 inches from the wart, and I have a little ruler in my pocket I have carried for years for that purpose. I stick it under there quickly and get this 8 inch distance, and then I have a clock, an interval timer, made especially for this purpose, and it can be set to the second. This clock was set to 3 minutes and 10 seconds. Then, after everything is in order as I have just described on the machine, there is a long handle with a little button on the end of the cord, an electric cord with a handle on it on which there is a button, and, if you press this button and keep it pressed, that actuates the machine; while I am pressing the button it is giving off x-rays, and the second I let go of it, it stops and there will be no x-ray coming. After everything is all ready, I start the clock that is already set for 3 minutes and 10 seconds and at the same time press this button, and I have to hold it with my finger until the clock goes off, until the alarm rings, which it does very accurately at the end of the set time, and when the alarm rings, I take my finger off the button and that stops the x-ray. On his first visit I treated five warts, according to my records. I did the same thing again, probably used a different piece of lead, a small piece if the wart was a different size and put the large sheet over the small one and went through the same procedure again and did that same thing five times on the 3rd of June. That is what I did on the 3rd of June."

The only expert testimony offered by the plaintiff, in addition to that of the defendant physician, was that of Dr. Poole of the city of Pontiac, an expert in roentgen therapy. He testified that x-ray is the best method for removing warts and that it is necessary to give a destructive dosage to the warty growth. He testified in detail as to the many variable factors involved in this method of treatment, the object being to apply a given, known amount of radiation at the particular treatment; that the number of roentgen units a machine will deliver in a certain voltage at a certain time is uniform for any particular machine and tube; that the time of exposure depends on the length of the ray, the filtration and the machine; that if the filter is tightly applied the result of angulation of the ray from the right angle would be loss of efficiency; that the effect of angulation of the ray into normal tissue would vary according to the voltage, and that frequency of treatment depends on the original dosage and other variable factors.

Another witness for the plaintiff, a son of the deceased, testified that he had been present in the doctor's office during the course of one of the treatments, and he stated what he recalled having seen the doctor do at the time.

Although we have held, said the Supreme Court, that leaving a sponge in a wound is not good medical practice and that it does not require the testimony of expert witnesses to establish such fact, the question of proper or improper use of roentgen rays does require the testimony of experts. The plaintiff urged that the testimony of her son established the basis for which the jurors could find or infer a negligent burning by roentgen rays. The testimony of this son is that of a layman, said the court. He makes no pretense of knowing the standard of care, skill and diligence required of an x-ray operator and possessed and exercised by others in similar communities. Although laymen generally are acquainted with the fact that roentgen rays are destructive and may result in burns or other serious conditions, the Supreme Court concluded, yet the testimony of plaintiff's own medical witness was such as to clearly demonstrate that roentgen ray treatment for warts involves questions of skill, judgment and practice beyond the knowledge of laymen and on which a jury would need the advice of experts in order to determine whether or not the claimed acts of defendant were improper. We believe the facts in the case are such that the questions of negligence became exclusively one for expert testimony. The doctrine of res ipsa loquitur is not recognized in this state. The evidence surrounding the claimed burn, its cause and effect, were not sufficient to require the defendant to respond in damages. Accordingly the judgment of the trial court in favor of the defendant physician was affirmed.—*Facer v. Lewis, 40 N. W. (2d) 457 (Mich., 1950).*

UNIVERSITY OF MICHIGAN LIBRARIES

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

20:99-200 (Feb.) 1950. **Partial Index**

Alkaline Phosphatase in Experimental Biliary Cirrhosis. M. Wachstein and F. G. Zak.—p. 99.
Bacteriologic Examination of Tissue Removed for Biopsy. L. A. Weed and D. C. Dahlin.—p. 116.
Activity of Beta-Glucuronidase in Human Female Genital Tissues and in Vaginal Secretions. L. D. Odell, H. D. Priddle and J. C. Burt. —p. 133.
Fibrosing Adenomatosis of Breast. E. L. Heller and J. C. Fleming. —p. 141.
*Maternal Pulmonary Embolism of Amniotic Fluid. J. R. Schenken, G. P. Slaughter and G. H. DeMay.—p. 147.

Pulmonary Embolism Caused by Amniotic Fluid.—Schenken and associates report the case of a primipara, aged 23, who had a slight vaginal discharge a few days before the expected onset of labor. Quinine, castor oil and a hot enema were given in order to induce labor, but only a few mild labor pains resulted. When the fetal membranes were ruptured, about 0.8 cm. of soft tissue resembling placenta was penetrated before the return of a moderate amount of amniotic fluid. Approximately nine and one-half hours following the rupture of the membranes, labor seemed well established. Subsequently the patient suddenly manifested cyanosis, air hunger and shock. The fetus was stillborn. The patient began to gasp and died. Microscopic studies revealed no important changes except those associated with pulmonary embolism of amniotic fluid. It was difficult to estimate the number of vessels containing debris of amniotic fluid, but every low power field showed vessels filled with it. The precapillary arterioles were chiefly involved. Most of the emboli consisted of desquamated epithelial cells, but vernix caseosa and mucin were also recognized. One arteriole contained a lanugo hair. The authors believe that the disorder is more common than the limited number of reports seems to indicate; they suggest that obstetricians and pathologists survey obstetric deaths in search of more cases, to gain a better understanding of the pathogenesis and possible prevention of the condition.

American Journal of Diseases of Children, Chicago

79:409-610 (March) 1950

Resistant Rickets. S. Freeman and I. Dunsky.—p. 409.
*Tuberculous Endogenous Reinfection: Twenty Year Follow-Up Study of Reactors After Removal from Contact. J. A. Johnston, P. J. Howard and B. H. Douglas.—p. 248.
Antistreptolysin Content of Cerebrospinal Fluid. R. Lundström and G. von Reis.—p. 438.
Pedigree of Clubfoot. J. V. Neel, H. F. Falls and A. R. Test.—p. 442.
Electrocardiograms of Normal Children with Special Reference to aV Limb Leads and Chest Leads. J. L. Switzer and M. Besoain.—p. 449.
Water-Reabsorbing Capacity of Tubular System in Newborn and in Infants. L. Barta and A. Hernadi.—p. 467.
Hypervitaminosis A. C. T. Fried and M. J. H. Grand.—p. 475.
Myocarditis Following Measles: Report of Case. F. X. Giustra and D. C. Nilsson.—p. 487.
Tick Paralysis: Report of Case in Philadelphia. K. E. Dawson, A. J. Sherman and A. C. LaBoccetta.—p. 491.
Brain Damage in Child: Sequela of Maternal Isoimmunization with B Factor. G. A. Jervis.—p. 495.
Hereditary Ectodermal Dysplasia of Anhidrotic Type. I. Lipton and M. H. Roberts.—p. 504.
Pediatric Proctology: Review with Comment. R. Turell.—p. 510.

Tuberculous Endogenous Reinfection.—The data presented by Johnston and his collaborators complete a 20 year observation period on persons who were wards of an agency providing foster homes for dependent children. The examination included skin testing and roentgenographic study of reactors. Since dependency in many cases resulted from institutionalization of the parents for tuberculosis, an opportunity was offered for following the course of first infections in a fresh environment over a long period. The results of the first 12 years of this survey were presented previously. A total of 932 reactors detected on examination of 6,222 children in foster homes and 281 contacts who did not react to tuberculin were followed up. The incidence of reactivity in this indigent group fell from 17.2 to 7.3 per cent between the first 12 and the last eight years of the study. Ten reinfection type lesions were detected on first examination. This diminished rate of incidence of reactors is noteworthy. While in line with the general trend in the United States, the fall is of such magnitude that the authors feel that it reflects in part the success of a campaign instituted about 20 years ago in Detroit to effect prompt hospitalization in all open cases. After the reactors were removed from contact, 29 reinfections were detected among them. For 8 of these the initial roentgenograms were normal. A survey technic that omitted skin testing and relied entirely on roentgenograms might, therefore, have missed the early detection of one fourth of the patients. The added fact that none of 281 contacts who reacted negatively acquired tuberculosis is further confirmation of the reliability of the reaction to the tuberculin test as a screening measure. There seems to be a 3 per cent chance that a child who reacts to tuberculin may acquire endogenous reinfection. The authors feel that the chief preventive factor is adequate nutrition throughout adolescence.

American Journal of Medical Sciences, Philadelphia

219:117-236 (Feb.) 1950

*Experiences with Venous Thrombosis and Pulmonary Embolism, with Special Reference to Anticoagulant Therapy. J. B. Vander Veer, P. T. Kuo and D. S. Marshall II.—p. 117.
*Two-Year Follow Up Report of Patients with Miliary and Meningeal Tuberculosis Treated with Streptomycin. P. A. Bunn.—p. 127.
Effect of Dibutoline Sulfate on Interdigestive Gastric Secretion of Peptic Ulcer Patients. S. H. Lorber and T. E. Machella.—p. 133.
Clinical Experience with Thiomerin: Observations on Its Use in 205 Patients. C. D. Enselberg and H. G. Simmons.—p. 139.
Use of Hyaluronidase in Preventing Pain of Subcutaneous Heparin Injection. M. S. Tuchman and S. E. Moolten.—p. 147.
Etiology of Pulmonary Arteriolosclerosis (Ayerza's Syndrome), with Report of Illustrative Case. S. S. Leopold.—p. 152.
Glucose Tolerance: I. Comparison of Four Types of Diagnostic Tests in 103 Control Subjects and 26 Patients with Diabetes. J. H. Moyer and C. R. Womack.—p. 161.
Diagnostic Value of Histologic Lesions of Striated Muscle in Rheumatoid Arthritis. L. Sokoloff, S. L. Wilens, J. J. Bunim and C. McEwen. —p. 174.
Role of Lipid Deposition in Renal Arteriolar Sclerosis. S. L. Wilens and S. K. Elster.—p. 183.
Lipotropic Effect of Liver Extract and Other Supplements in Dietary Induced Liver Injury in Rats. V. A. Drill and C. A. Hall.—p. 197.
Eosinophilia in Infectious Mononucleosis. R. E. Kauffman.—p. 206.
Loss of Vision After Distant Hemorrhage. R. W. Hollenhorst and H. P. Wagener.—p. 209.
Progress in Surgical Diseases of Pancreas. J. M. Howard.—p. 219.

Anticoagulant Therapy for Venous Thrombosis and Pulmonary Embolism.—Vander Veer and co-workers report on 222 patients, 99 men and 123 women, with venous thrombosis with and without pulmonary embolism. One hundred and fifty-three were over 40 years old. One hundred were medical patients and 122 were postoperative, postpartum or posttraumatic patients. One hundred and twenty four patients received combined treatment with heparin and dicumarol,[9]

and 3 received heparin alone. Results with anticoagulant therapy demonstrated that a significant number of patients with thrombotic and thromboembolic disease will be benefited only after the prothrombin time has been elevated and maintained with dicumarol® at 35 to 55 seconds (about 10 to 13 per cent of normal) using the Link-Shapiro technic of prothrombin time determination. Pulmonary embolism occurred in 89 of the 222 patients; there were few or no signs and symptoms of peripheral venous thrombosis before the onset of pulmonary embolism in 40 of the 89 patients. Clinical and pathologic evidence proved that the source of the pulmonary emboli was proximal to the deep veins of the legs in many of these patients. An acute "cor pulmonale pattern" was evident in only 5 of 46 patients with pulmonary embolism in whom electrocardiographic studies were available. A transitory RS pattern of QRS complexes appeared in lead aVL in 5 other patients with electrocardiograms obtained within two hours of pulmonary embolization, and it disappeared within a few hours after the acute episode. Thirteen patients died suddenly from massive pulmonary embolism despite considerable vigilance and before treatment could be instituted. It seems rational to adopt a program of prophylactic treatment with anticoagulants in certain susceptible groups of patients.

Streptomycin in Miliary and Meningeal Tuberculosis.—Bunn presents a two year follow up on 100 patients with miliary and meningeal tuberculosis treated with streptomycin. Seventy-nine of the 100 patients died, and 2 of the 21 living patients are expected to die shortly. Seventy-six of these 81 patients died or are dying of their miliary and, or, meningeal tuberculosis. Fatal relapses of one or the other were observed to occur as long as two years after an initial "complete" remission. Twenty-one patients survived at least 19 months after the end of treatment, and a majority survived longer than 22 months. Since therapy averaged somewhat over four months, 18 of the 21 lived for over two years from the onset of their illness and the remaining 3 for at least 23 months. The treatment schedule of the 21 survivors was not obviously different from that of the patients who died. It consisted of daily doses of 1.8 Gm. of streptomycin by intramuscular route for 100 to 185 days. The intrathecal dose in cases of meningitis was 50 to 100 mg., injected three to seven times weekly. No patient of the 81 with meningitis survived who did not receive at least 45 separate intraspinal injections of streptomycin. It seems that this adjunctive route of administering streptomycin is advisable. Acute disseminated miliary tuberculosis can be cured in somewhat over 50 per cent of the cases. About 20 per cent of the patients with meningitis alone survive. Less than 10 per cent of the patients with combined miliary and meningeal tuberculosis will survive. Meningitis developed in approximately two thirds of the patients with miliary tuberculosis. Diagnostic lumbar puncture should be performed at routine periodic intervals in patients with miliary tuberculosis. No series of cases can be safely evaluated for at least two years after the end of the treatment period. The success of therapeutic regimens is grossly overestimated if patients dying within two weeks after the start of treatment are excluded or if evaluation is made after only six months of observation. Survival rates in the author's series of cases are almost doubled if this is done.

American Journal of Psychiatry, New York

106:641-720 (March) 1950. **Partial Index**

Adrenal Cortical Responses to Stress in Normal Men and in Those with Personality Disorders. G. Pincus and H. Hoagland.—p. 641.
Carbohydrate and Lymphoid Studies in Schizophrenia. H. Freeman and F. Elmadjian.—p. 660.
Studies of Adrenal Cortical Activity in Psychoneurotic Subjects. R. A. Cleghorn and B. F. Graham.—p. 668.
Concept and Experimental Design in Study of Stress and Personality. S. L. Sands and E. H. Rodnick.—p. 673.
Psychosomatic Concept in Working Clothes. G. L. Ross and T. E. Brown.—p. 680.
Hallucination and Imagery Induced by Mescaline. T. Thale, B. W. Gabrio and K. Salomon.—p. 686.
Use of Somnoform as Aid in Narcoanalysis and Narcohypnosis. D. McG. Kelley.—p. 692.
Cytochrome C: Effects of Intravenous Administration in Presenile, Senile, and Arteriosclerotic Cerebral States. R. W. Garnett and W. O. Klingman.—p. 697.

American Journal of Surgery, New York

79:219-352 (Feb.) 1950

Surgical Consideration in Management of Cancer of Colon. C. J. Hunt.—p. 222.
*Aureomycin in Soft Tissue Infections. M. A. Logan, W. I. Metzger, L. T. Wright and others.—p. 229.
Soft Tissue Cover of Defects of Lower Extremity. B. C. Martin and R. O. Brauer.—p. 244.
Abdominal Trauma: Clinical Study of 200 Consecutive Cases from Massachusetts General Hospital. C. E. Welch and W. P. Giddings.—p. 252.
Erect Method of Myelography. A. L. L. Bell, H. O. Wunderlich, H. C. Fett and C. C. Pool.—p. 259.
Threaded Wires and Pins for Longitudinal Medullary Fixation of Fractures of Humerus, Radius, Ulna and Tibia. A. A. Schwartz and P. H. Harmon.—p. 264.
Intraspinal Segmental Alcohol Block for Relief of Intractable Pain: Preliminary Report. F. P. Ansbro.—p. 276.
Postoperative Abdominal Wound Separation and Evisceration. E. J. Joergenson and E. T. Smith.—p. 282.
Primary Treatment of Extensive Burns. R. K. Brown and J. M. Dziob.—p. 288.
Special Problems in Reconstructive Surgery in Amputee: Lower Extremities. F. J. McCoy.—p. 295.
Unusual Anal, Rectal and Perirectal Tumors Palpable by Rectal Examination. A. Oppenheim and J. P. O'Brien.—p. 302.
Unilateral Spinal Anesthesia for Surgical Reduction of Hip Fractures. J. E. Ruben and P.-M. Kamsler.—p. 312.

Aureomycin in Soft Tissue Infections.—Logan and his associates present the results obtained in 82 surgical infections of the soft tissues, which included cellulitis, perirectal infections, peripheral ulcers, lymphadenitis, traumatic cases, gas gangrene infections and a miscellaneous group. Infections caused by a variety of gram-positive and gram-negative bacilli were successfully treated. Most of these infections were caused by staphylococci or beta hemolytic streptococci. The miscellaneous group includes a case of bacteremia by the paracolon bacillus and one by Spirillum minus. The age of the patients and medical complications did not influence the activity of the drug. Aureomycin was used effectively by the oral, intramuscular and intravenous routes. Results of blood level studies and in vitro sensitivity tests confirmed the clinical results. No resistance to the drug developed in cases in which prolonged administration was necessary. No serious signs of toxicity were seen. Chemical phlebitis developed in approximately 15 per cent of the patients treated intravenously for two days or longer. Aureomycin yielded satisfactory results in the treatment of the reported infections whether used alone or as an adjunct to operation. It appreciably shortened the clinical course of some infections, for example, lymphadenitis. In other infections, such as cellulitis, the usual rate of surgical intervention was reduced. In perirectal infections the drug made early definitive surgical treatment possible. The authors conclude that the use of aureomycin should be continued in soft tissue infections.

Annals of Internal Medicine, Lancaster, Pa.

32:207-392 (Feb.) 1950

Acute Radiation Syndrome in Man. S. Warren and J. Z. Bowers.—p. 207.
Evaluation of Histamine and Cholinesterase in Allergic Phenomena. A. M. Hjort, A. S. Worden and J. Hogle.—p. 217.
Respiratory Impairment and Pulmonary Complications in Paralyzed States: Method for Early Detection. R. L. Swank.—p. 229.
Clinical Patterns of Myocardial Infarction in Ambulant Patients. I. D. Fagin and H. A. Chapnick.—p. 243.
Use of Sympathetic Nerve Block in Ambulatory Patient with Special Reference to Its Use in Herpes Zoster. L. M. Ferris and G. H. Martin.—p. 257.
Nicotinic Acid in Treatment of Certain Depressed States: Preliminary Report. A. C. Washburne.—p. 261.
Electrocardiographic Observations During Poliomyelitis Epidemic. H. A. Bradford and L. L. Anderson.—p. 270.
Effect of Endogenous Insulin on Gastric Function: Clinical Study. W. D. Poe.—p. 279.
Recovery from Ethylene Glycol (Anti-Freeze) Intoxication: Case of Survival and 2 Fatalities from Ethylene Glycol Including Autopsy Findings. H. S. Kahn and R. J. Brotchner.—p. 284.
Calcified Cardiac Aneurysms. A. Bogoch and E. F. Christopherson.—p. 295.
The Doctor as a Citizen. H. A. Moe.—p. 309.
*Effect of Pituitary Adrenocorticotropin (ACTH) in Dermatomyositis. T. W. Oppel, C. Coker and A. T. Milhorat.—p. 318.

Pituitary Adrenocorticotropic Hormone (ACTH) in Dermatomyositis.—Oppel and associates treated 2 patients with dermatomyositis with pituitary adrenocorticotropic hormone (ACTH). One patient who also had advanced carcinomatosis received no apparent benefit from 12 days of treatment. The

UNIVERSITY OF MICHIGAN LIBRARIES

other patient began to improve within a few hours after the first dose and was in good health within a few weeks. He was treated for 53 days and had not had a relapse four months after the administration of the hormone had been discontinued. He showed evidence of adrenal cortex stimulation and some manifestations of hyperfunction. When hospitalized, the patient had acute pain with every movement. The left side of the neck was swollen and tender, and soft nonpitting edema overlay a deep, fixed induration. There was edema of the left side of the uvula. Both calves, the anterior aspect of the thighs and the right triceps area were tender on palpation, with redness and localized swelling. Later lesions developed on the arms, neck, legs and later the abdomen. The muscular pain progressed so that all the muscles of the extremities, and later the abdominal muscles, were involved. He had episodes of severe chest pain, which lasted two or three days and required infiltration of intercostal nerves with procaine hydrochloride for relief. The pain in the extremities became so severe that it was necessary to administer 150 mg. meperidine hydrochloride nearly every four hours. During the first month that he was in the hospital the patient lost 29 pounds and there was muscular wasting. Improvement and fall in temperature began within six hours after onset of treatment with ACTH. Seven years previously this patient had had a similar illness, at which time he had been hospitalized for over six months.

Annals of Otol., Rhin. and Laryngology, St. Louis

58:957-1268 (Dec.) 1949. **Partial Index**

Radium Therapy in Partial Hearing Loss. N. Canfield and D. Sudarsky. —p. 957.
Functions of Parotid Gland. L. Nash and L. F. Morrison.—p. 976.
Further Experimental Studies of Toxic Effects of Streptomycin on Central Vestibular Apparatus of Cat. J. Winston, F. H. Lewey, A. Parenteau and others.—p. 988.
Lethal Granulomatous Ulceration Involving Midline Facial Tissues. H. L. Williams.—p. 1013.
Rhinotomy for Exploration of Nasal Passages and Accessory Nasal Sinuses. J. E. Bordley and W. P. Longmire.—p. 1055.
Diagnosis and Treatment of Maxillary Cysts. R. A. Sage.—p. 1068.
Nebulized Cocaine as Anesthesia for Peroral Endoscopy. H. F. Keiber and D. H. Jones.—p. 1075.
Tracheotomy in Botulism: Report of Case. B. Bofenkamp and R. E. Priest.—p. 1093.
Early Diagnosis of Bronchogenic Carcinoma. E. A. Looper and R. J. Cross.—p. 1113.

Archives of Dermatology and Syphilology, Chicago

61:361-538 (March) 1950

Antihistaminic Drugs in Dermatologic Therapy. G. A. Waldriff, J. Davis and G. M. Lewis.—p. 361.
*Survivors of bombing of Hiroshima Three Years Later. F. G. Novy Jr. —p. 379.
Aureomycin in Treatment of Some Dermatoses. H. M. Robinson Sr. —p. 384.
Sodium and Potassium Content of Human Epidermis. H. E. C. Zheutlin and C. L. Fox Jr.—p. 397.
Cutaneous Granuloma Following Laceration by Fluorescent Light Bulbs. H. J. Neave, S. B. Frank and J. A. Tolmach.—p. 401.
Gammexane® in Treatment of Scabies. L. V. Kornblee and F. C. Combes.—p. 407.
Use of Tetraethylammonium for Certain Itching States. T. Cornbleet, D. P. Musgrave, S. Barsky and D. L. Fuhrman.—p. 413.
Sensitization to Polyethylene Glycols (Carbowaxes®). M. J. Strauss. —p. 420.
Roentgen Rays in Treatment of Cutaneous Diseases: Limitations and Contraindications to Their Use. C. G. Lane.—p. 426.
Cataract with Atopic Dermatitis: Dermatologic Aspects, with Special Reference to Preoperative and Postoperative Care. K. G. Thompson. —p. 433.
Facial Granulomas with Eosinophilia: Their Relation to Other Eosinophilic Granulomas of Skin and to Reticulogranuloma. J. H. Cobane, C. L. Straith and H. Pinkus.—p. 442.
Fuseaux Formation of Genus Microsporum. K. Loewenthal.—p. 455.
Kerion Caused by Trichophyton Sulfureum: Report of Case. M. Moore and W. E. Wooldridge.—p. 460.
Avian Mite Dermatitis (Gamasoidosis): Report of Case. J. W. Shaw and R. A. Pommerening.—p. 466.
South American Blastomycosis (Lutz's Disease): Contribution to Knowledge of Its Pathogenesis. L. Bogliolo.—p. 470.
Petroleum Distillates in Dermatologic Therapy. F. C. Combes and M. Reschke.—p. 475.

Survivors of Bombing of Hiroshima Three Years Later.—Novy examined a group of survivors in 1948, three years after the detonation of the atomic bomb. The persons he saw had been 1 to 3 kilometers from the center, and most of them were on the street at the time of the explosion. The extensively burned patients showed scarring. Most of these scars were soft and pliable. The scarring about the neck and hands produced contractures. In most instances these contractures appeared to be amenable to plastic surgery, as they were not bound down to the underlying tissues. Many of the patients stated that their scars had greatly improved with the passage of time. A number of survivors showed the patterned type of burn due to infra-red radiation. These burns take on a bizarre configuration. These "flash" burns due to infra-red radiation occur in areas covered by dark clothing. No burning takes place in areas covered by white clothing. "Flash" burns also occur where the clothing has been bound tightly over the skin or where there are several layers of cloth, as, for example, over the shoulder and at the cuff. The shadow produced by the raised hand or the nose will protect the part of the body in shadow from being burned. No cases of permanent epilation were noted. The temporary alopecia after the bombing was followed by a regrowth of hair. The author feels that none of the burns were due to radiation injury. He discusses the possibilities of finding chronic cutaneous ionizing radiation injury among the survivors of the Hiroshima bombing. Any person exposed to the bomb within a radius of 1,000 yards of the center will receive a lethal dose of ionizing radiation, but in the same area his chances of surviving the air blast plus secondary missiles are extremely slight. It would be a freak circumstance if a person survived and showed cutaneous ionizing radiation changes, because this would mean that most of the body would have had to be completely protected from radiation and only a small portion exposed. The other possibility for the development of permanent cutaneous radiation changes would be the handling of some fission product or some metal that had become radioactive because of the action of neutrons. At Hiroshima there was no significant radiation left by the first part of September 1945.

Arch. Indust. Hygiene and Occup. Med., Chicago

1:271-378 (March) 1950

Simulation and Self Infliction as Encountered in Industrial Dermatology. J. G. Downing.—p. 271.
Reliability of Urinary Porphyrin Test for Lead Absorption. R. K. Waldman and R. M. Seideman.—p. 290.
*Role of Porphyrins in Occupational Diseases: I. Significance of Coproporphyrinuria in Lead Workers. C. C. Maloof.—p. 296.
Medical Control on Exposure of Industrial Workers to Trichloroethylene. R. Frant and J. Westendorp.—p. 308.
Trichloroethylene Poisoning. L. H. Cotter.—p. 319.
*Solubility of Silica and Alumina. C. M. Jephcott and J. H. Johnston. —p. 323.
Toxicologic Studies on New Miticide Bis(Parachlorophenoxy)Methane: I. Acute and Semichronic Toxicity. H. C. Spencer, V. K. Rowe, E. M. Adams and D. D. Irish.—p. 341.
Optic Atrophy Following Inhalation of Carbon Tetrachloride. A. R. Smith.—p. 348.

Porphyrins in Occupational Diseases.—Maloof examined 250 urine specimens from industrial workers for lead analysis and for coproporphyrin content. The urinary coproporphyrin value was increased in almost every case in which the urinary lead value was elevated. Coproporphyrinuria, although consistently seen in workers absorbing hazardous amounts of lead, is not specific for lead poisoning, since it may be seen in many other illnesses. A coproporphyrin test, therefore, should not supplant urinary lead analyses but should be used in conjunction with them in preventing lead poisoning and in determining which workers best should be rotated and watched. Coproporphyrinuria apparently occurred earlier than stippling of red blood cells in the majority of observed instances of lead poisoning. It is not suggested that stippled red blood cell counts be eliminated; however, emphasis should not be laid on the absence of stippled cells and increase of stippling should be noted as an aid in prevention and diagnosis. The coproporphyrin value should carry more weight than the stippled red blood cell count. The simple, rapid, economical coproporphyrin test should be used to greater advantage by persons who are able to see and examine the workers in question regularly. The test could be easily performed routinely during intervals between urinary lead analyses.

Solubility of Silica and Alumina.—Jephcott and Johnston studied the effects of various forms of alumina on the dissolution of different types of silica as well as the effects of different types of silica on the dissolution of various forms of alumina,

the latter being of interest when the fume to which workers are exposed in plants producing alumina abrasives from bauxite is considered. The amounts of silica and alumina that can be dissolved in a modified Ringer's solution at 37 C. and at room temperature and also in water at 37 C. were determined. The solubility of alumina and of silica proved to be greater in modified Ringer's solution than in water, both at 37 C. and at room temperature. In general the rate of dissolution of silica varied inversely as the particle size. No such relationship was observed in the case of alumina. The ability of different forms of alumina to depress the solubility of silica was not proportional to their own solubility. Similarly the ability of different types of silica to depress the solubility of alumina was not proportional to their solubility. Black aluminum powder (about 20 per cent metallic aluminum and 80 per cent aluminum oxide) and xH1010 alumina (alpha alumina monohydrate with a small amount of calcite), used at present for therapeutic purposes, were among the most active forms of alumina in their ability to depress the solubility of silica. Alumina fumes given off in electric furnace operations were observed to reduce the solubility of many types of silica to low levels. The furnace fumes from bauxite had a relatively low silica and relatively high alumina solubility. All forms of alumina greatly depressed the solubility of quartz and diatomaceous earth. Quartz and diatomaceous earth had only a limited effect on the solubility of alumina. In general, the forms of alumina which are the most active in depressing the solubility of silica are the ones whose own solubilities are the least affected by the action of silica. Similarly the types of silica which are the most active in depressing the solubility of alumina are the ones whose own solubility is least affected by the action of alumina.

Archives of Neurology and Psychiatry, Chicago

63:357-534 (March) 1950

*Results of Spinal Pyramidotomy in Treatment of Parkinsonian Syndrome. T. J. Putnam and E. Herz.—p. 357.
Experimental Demyelination by Means of Enzymes, Especially Alpha Toxin of Clostridium Welchii. L. R. Morrison and P. C. Zamecnik. —p. 367.
Topographic Distribution of Plaques in Spinal Cord in Multiple Sclerosis. T. Fog.—p. 382.
*Histamine Therapy in Acute Ischemia of Brain. A. R. Furmanski. —p. 415.
Studies in Disorders of Muscle: III. "Pseudohypertrophy" of Muscle in Progressive Muscular Dystrophy and Other Neuromuscular Diseases. F. H. Tyler.—p. 425.
Changes in Behavior Following Frontal Lobectomy in Dogs and Cats. T. J. Speakman and B. P. Babkin.—p. 433.
Sodium Concentration of Thermal Sweat in Treated and Untreated Patients with Mental Disease. H. Grunebaum and M. D. Altschule. —p. 444.
Weakness of Extensor Muscles of Wrist: Early Sign in Hemiparesis. I. Strauss.—p. 453.
Central Protrusion of Cervical Intervertebral Disk Involving Descending Trigeminal Tract: Report of Case. A. R. Elvidge and Choh-Luh Li. —p. 455.
Digital Extension Reflex: Preliminary Communication. R. A. Spitz. —p. 467.
Neurologic Conditions Occurring as Complications of Pregnancy. A. B. King.—p. 471.

Spinal Pyramidotomy in the Parkinsonian Syndrome.—Putnam and Herz believe that if drugs of the belladonna series produce satisfactory results surgical interventions need not be considered. They analyze the results obtained with spinal pyramidotomy in 22 patients with the parkinsonian syndrome who were followed for 12 months or more. All the operations reported here were unilateral. A history suggestive of encephalitis was obtained in 6 of the patients, but in the majority no etiologic factors were apparent. Sudden onset in 2 cases, at the ages of 65 and 68, respectively, and the presence of vascular changes suggested an arteriosclerotic origin. Of the various manifestations of the parkinsonian syndrome, only the alternating tremor could be favorably influenced. There was complete disappearance of tremor in one third of the cases; the tremor was reduced in an additional third, and in one third treatment failed. Reduction of motor strength, present in all cases immediately after the operation, subsided or decreased in the majority. This surgical procedure can be considered a symptomatic treatment for tremor and can be recommended to patients with severe, distressing, alternating tremor if akinetic symptoms and rigidity are not pronounced. The possibility of the persistence of reduction of motor strength has to be considered with this operation, but the average disability appears to be less after spinal than after cortical and subcortical operations. There is no danger of convulsions, and there is a substantial difference in mortality in favor of pyramidotomy. The authors had favorable experiences with a unilateral pyramidotomy combined with a homolateral cortical operation and with bilateral pyramidotomies, but experiences with these have been too few and the time interval has been too short to permit definite conclusions except that both types of operation are feasible, are not particularly dangerous and promise good results.

Histamine Therapy in Acute Ischemia of Brain.—Furmanski stresses that the speed of administration of histamine is the decisive factor in its therapeutic application to man. He describes observations on the first 25 cases of acute ischemia of the brain in which the slow intravenous infusion of histamine was used. The ischemia was caused by arterial thrombosis, embolism and vascular insufficiency. The author found that histamine phosphate given intravenously at the rate of 0.02 mg. per minute produces a consistent dilatation of the arterioles, capillaries and venules of the brain. This is most conveniently accomplished by administration of 2.75 mg. of histamine diphosphate dissolved in 500 cc. of isotonic fluid and given by intravenous drip over a period of two hours. No change in the arterial or venous blood pressure occurs in man with this rate of infusion. Histamine infusions were given one to three times daily, and nicotinic acid was administered orally to patients with acute ischemia of the brain. Twenty of the 25 patients experienced improvement in all affected fields; 3 had improvement in some fields, and 2 had no apparent change during histamine therapy. There was 1 death, due to uremia and heart failure. This man had recovered with histamine therapy from two previous episodes of hemiplegia. Compared to the usual mortality and improvement rates without vasodilatation therapy, these results indicate that histamine therapy was of benefit.

Archives of Ophthalmology, Chicago

43:407-598 (March) 1950

Late Fistulization of Operative Wounds: Diagnosis and Treatment. J. H. Dunnington and E. F. Regan.—p. 407.
*Treatment of Retinitis Pigmentosa with Cod Liver Oil Injections and Placental Implantation. S. L. Saltzman and C. Haig.—p. 419.
*Use of Paraaminosalicylic Acid Alone or in Association with Streptomycin in Ocular Tuberculosis: Experimental and Clinical Investigations. G. B. Bietti.—p. 431.
Dibutoline Sulfate: Comparative Clinical Study of Cycloplegic Effects. B. C. Gettes.—p. 446.
Acute Retrobulbar Neuritis: Report of 2 Cases. R. T. Wong.—p. 454.
Hyperphoria: Statistical Study. R. G. Scobee and E. A. Bennet.—p. 458.
Age Norms of Refraction and Vision. F. J. Slataper.—p. 466.
Eye in Teratomas: Report of Case and Review of Literature. G. M. Breinin.—p. 482.
Aneurysm of Internal Carotid Artery Simulating Tumor: Report of Case. J. M. Levitt.—p. 500.
Corneal Fistula Following Transplantation: Report of 2 Cases; Methods of Treatment. C. I. Thomas.—p. 503.
Epithelial Invasion of Anterior Chamber Following Cataract Extraction: Effect of Radiation Therapy. M. H. Pincus.—p. 509.
Treatment of Giant Follicular Lymphoma with Nitrogen Mustard (Methyl-Bis-[2-Chloroethyl] Amine): Report of Case. B. M. Chambers. —p. 520.
Absorption of Protein Through Conjunctival Mucous Membrane. R. A. Chait.—p. 526.
Objective Testing of Vision with Use of Galvanic Skin Response. H. N. Wagner Jr.—p. 529.
Early Diagnosis of Syphilitic Primary Optic Nerve Atrophy. J. V. Klauder and G. P. Meyer.—p. 537.

Treatment of Retinitis Pigmentosa.—Saltzman and Haig treated 47 patients with retinitis pigmentosa and 2 with retinitis punctata albescens with intramuscular injections of cod liver oil and intramuscular injections of cod liver oil plus subcutaneous and subconjunctival placental implants, according to the methods of Filatov and his co-workers. No significant lasting improvement was observed in visual acuity, visual fields or light sensitivity.

Paraaminosalicylic Acid and Streptomycin in Ocular Tuberculosis.—Bietti describes studies on several series of guinea pigs and clinical trials on patients with ocular tuberculosis and concludes that the combination of paraaminosalicylic acid and streptomycin undoubtedly controls much better than

UNIVERSITY OF MICHIGAN LIBRARIES

the hitherto employed therapeutic agents experimental and clinical ocular tuberculosis. He stresses that ocular tuberculosis, especially the uveal type, is a complicated phenomenon, in which peculiar immune-allergic features exist which are practically unaffected by chemotherapy but which play an important part in the disease. The author believes that in lesions of the anterior segment of the eye the oral administration of paraaminosalicylic acid and the intramuscular injection of streptomycin with the addition of iontophoresis should be combined. This combined treatment should be tried in every case of active ocular tuberculosis, in addition to the classic therapy, such as tuberculin to desensitize the organism, climatotherapy, administration of calcium and vitamins and the maintenance of good nutrition. The dose 10 to 15 Gm. of paraaminosalicylic acid and 0.5 to 1 Gm. of streptomycin should be given daily in three week courses, and these should be repeated one or more times. Since in the doses used the drugs are only bacteriostatic, the killing of the tubercle bacilli and the healing of the lesions must be accomplished by the body mechanisms of immunity and defense, which should be properly augmented.

Archives of Pediatrics, New York

67:51-98 (Feb.) 1950

Lead Encephalopathy: Treatment and Recovery; Report of Case. I. Binder.—p. 51.
*Poliomyelitis: Infectious or Metabolic? W. J. McCormick.—p. 56.
Pseudohermaphroditism in Twins. M. L. Stone and A. Zorgniotti. —p. 74.
Atypical Pyloric Stenosis: Report of 2 Cases in Negro Infants in Whom Vomiting Began on First Day of Life. A. D. Kessler and R. B. Scott.—p. 78.
Relationship of Trauma to Sickle Cell Anemia: Report of Case. M. Kliger.—p. 82.

Poliomyelitis: Infectious or Metabolic?—Paralytic disease could be produced in monkeys by intracerebral inoculation of an extract from the central nervous system of a victim of poliomyelitis. The disease was therefore regarded as infectious and communicable, and a filtrable virus was believed to be the causative agent. McCormick noted a similarity between beriberi and poliomyelitis. He has made an extensive study of the comparable features of the two diseases since the 1937 outbreak of poliomyelitis in Toronto. Beriberi has been recognized in the Orient for many centuries. Its incidence in epidemic proportion has become noticeable since the introduction of rice polishing, whereby the vitamin B factors are removed. Likewise poliomyelitis, although apparently known since ancient Egyptian times, did not appear in epidemic form until 1840, after the adoption of the patented process of white flour milling, by which the vitamin-B-containing elements are discarded. The bodily requirement of vitamin B_1 is in direct relation to the metabolic rate. The metabolic rate is higher in childhood and early youth than in the adulthood; it is higher in the male than in the female, higher in the physically active than in the sedentary and higher in pregnancy. Since the author first advanced the hypothesis of vitamin B deficiency as the basic cause of poliomyelitis in 1937, clinical trial of vitamin B therapy in this disease has been made with results almost as favorable as in the treatment of beriberi. The dietary history of 200 cases of poliomyelitis revealed a deficiency of vitamin B_1 in every case. Frequent references have been made to the influence of surgical operations on the incidence of poliomyelitis. The decisive factor in tonsillectomy or other operations may be that the surgical trauma and anesthesia increase the vitamin B_1 requirement. The metabolic concept of poliomyelitis does not exclude the possibility of an infectious process as the initial or febrile stage of the disease; the paralytic involvement may be a sequel to the vitamin B_1 depletion brought about by the infectious prelude. Beriberi has been proved to be caused by deficiency of vitamin B_1, yet earlier it was regarded as infectious and contagious, just as poliomyelitis still is regarded. The author calls attention to some unusual features of the recent outbreak of poliomyelitis in the Canadian Arctic: the winter incidence, the low hygienic and nutritional status of the Eskimo and the fact that the chief food purchases of some Eskimos at the time of the poliomyelitis outbreak consisted of white flour, white sugar, corn syrup, lard, tea and tobacco, all of which are almost completely devoid of essential vitamins. As another example of the effect of restricted food intake on poliomyelitis incidence the author cites the 1937 poliomyelitis outbreak in Toronto, at which time the incidence was four times higher among people on relief who had a restricted food intake, than among the general population. The author regards the associated virus as a biochemical substance produced by the disease, which, although capable of producing paralysis in experimental animals by catalytic chemical action in the nervous system, is not necessarily a means of spread of the disease under ordinary conditions.

Arizona Medicine, Phoenix

7:1-84 (Feb.) 1950

Radiation Sickness. W. W. Watkins.—p. 17.
Use and Abuse of Low Sodium Diet in Hypertension. W. H. Bates. —p. 21.
Ulcerative Cecitis with Intramural and Serosal Hemorrhages and Abscesses of Non-Specific Variety Following Subcutaneous Injury to Abdomen. S. E. Monroe, G. E. Adami and C. G. Fraser.—p. 25.
Recent Progress in Cancer. E. P. Palmer.—p. 26.
Magnetic Intra-Ocular Foreign Bodies. A. E. Cruthirds.—p. 31.

Arkansas Medical Society Journal, Fort Smith

46:153-166 (Feb.) 1950

Newer Management of Carcinoma of Bladder. H. F. H. Jones, J. W. Headstream, H. G. Hollenberg and others.—p. 153.
Puerperal Gynecology: Immediate Repair of Cervical Lacerations at Childbirth. E. T. Ellison, T. H. Baker, E. J. Crawford and M. R. McCaskell Jr.—p. 157.

46:167-202 (March) 1950

Study of Convulsive Fractures of Dorsal Spine Following Electric Shock Therapy in Psychotic Patients. I. Meschan, J. B. Scruggs and J. D. Calhoun.—p. 167.
*Gastrointestinal Manifestations of Myocardial Infarction. F. M. Adams. —p. 171.

Gastrointestinal Manifestations of Myocardial Infarction.—Adams describes 5 patients who had nausea and vomiting before they had been given narcotics. The symptoms in 1 patient were suggestive of an acute surgical emergency and an operation was considered before the true nature of the disease was detected. In another patient the infarction occurred during a period of emotional stress. The chief complaint in one was related to diarrhea, which may or may not have been incidental to the onset of myocardial infarction. One patient presented symptoms usually encountered in food poisoning, nausea, vomiting and fainting being the chief manifestations and the substernal oppression constituting a lesser complaint. The diagnosis was more obvious in the patient with bilateral arm pain. The electrocardiogram was of great value in making the correct diagnosis in each instance.

Blood, New York

5:107-208 (Feb.) 1950

*Treatment of Erythroblastosis Fetalis by Transfusion with Sedimented Red Cells. S. Pennell.—p. 107.
*Reactions to Single and Multiple Transfusions: Comparison Between Homologous and Conditioned O Blood Transfusions. N. C. Klendshoj and E. Witebsky.—p. 123.
Transfusion Reactions to Plasma Constituent of Whole Blood: Their Pathogenesis and Treatment by Washed Red Blood Cell Transfusions. W. Dameshek and J. Neber.—p. 129.
Effect of Folic Acid on Central Nervous System of Normal Subjects and Subjects with Anemia Other than Pernicious Anemia. J. Weissberg, T. H. McGavack, M. Vogel and S. Kenigsberg.—p. 148.
Action of Pteroylglutamic Acid on Blood Dyscrasias Induced by Thiouracil and Propylthiouracil. R. A. Delor and H. G. Petering. —p. 155.
Effect of 4-Amino-Pteroylglutamic Acid (Aminopterin) on Human Leukemic Leukocytes In Vitro. F. W. Gunz.—p. 161.
Effects of 4-Amino-N^{10}-Methyl-Pteroylglutamic Acid on Leukocytes of Normal and Leukemic Mouse. J. H. Burchenal, J. L. Biedler, J. Nutting and G. D. Stobbe.—p. 167.
Lymphocytes in Thoracic Duct, Intestinal and Hepatic Lymph. J. D. Mann and G. M. Higgins.—p. 177.
Plasmacytosis in Diseases Other Than Primary Plasmacytic Diseases: Report of Six Cases. R. S. Fadem and J. E. McBirnie.—p. 191.

Transfusion in Erythroblastosis Fetalis.—Pennell treated 28 newborn infants with erythroblastosis fetalis by transfusion of compatible sedimented red cells from a blood bank. The disease was due to Rh incompatibility in 21 cases and to the incompatibility of the ABO blood groups between mother and child in 7. Three of the 28 patients (10.7 per cent) died. This mortality rate compares favorably with other

reports in which exchange transfusion was the therapeutic procedure. Transfusion of sedimented red cells in 50 to 60 cc. amounts proved to be sufficient to cause an adequate rise in the hemoglobin values with a minimum load on the infant's circulation. This method, in contrast to exchange transfusion, has the advantage of reducing the administration of plasma to a minimum, thereby preventing further hemolysis of the infant's red cells by enhancing the agglutinin titer. The method also eliminates the administration to the infant of large amounts of extraneous substances such as sodium citrate, heparin and calcium gluconate employed in exchange transfusion.

Reactions to Homologous and Conditioned O Blood Transfusions.—Klendshoj and Witebsky compared the reaction rates in 5,969 transfusions of homologous blood with those in 1,045 transfusions of universal blood conditioned by the addition of blood group specific substances. These transfusions were given routinely at the Buffalo General Hospital over a period of four years. There were no detectable untoward effects ascribable to the blood group specific substances A and B during the routine use of group O blood conditioned by the addition of these specific substances.

Bulletin of the Los Angeles Neurological Society

14:193-248 (Dec.) 1949

Parkinsonism and Pregnancy: Influence of Presumed Subclinical Encephalitis in Production of Clinical Syndrome. H. E. Andrén. —p. 193.
Analysis of Electroencephalographic Findings in 40 Cases of Verified Brain Tumor: IV. Electroencephalographic Findings in Astrocytomas, Medulloblastomas and Extra-Encephalitic New Growths. H. M. Cuneo, C. W. Rand and H. Sjaardema.—p. 200.
Methyl-Phenyl-Ethyl Hydantoin (Mesantoin) in Treatment of Convulsive Disorders. C. Marsh and V. J. Miller.—p. 227.
Metastasis to Skull of Leiomyosarcoma of Uterus: Report of Case with Secondary Involvement of Brain. R. H. Iwata and C. B. Courville. —p. 232.
Acute Hemorrhagic Encephalitis of Tuberculous Origin: Report of Case. N. W. Brockman and E. W. Amyes.—p. 239.
Lighted Guillotine Nerve Hook: For Use in Surgery of Sympathetic Nervous System. E. Seletz.—p. 244.

Canadian Medical Association Journal, Montreal

62:219-316 (March) 1950

Investigation of Outbreak of Staphylococcus Folliculitis (Pemphigus Neonatorum) by Use of Bacteriophage Typing of Staphylococcus Pyogenes. G. D. Denton, G. Kalz and A. R. Foley.—p. 219.
Well Water Methaemoglobinaemia in Infants. H. Medovy.—p. 228.
*Para-Aminosalicylic Acid with Streptomycin in Tuberculosis. W. Anderson, M. G. W. Jansen and C. A. Wicks.—p. 231.
Cervical Scrapings Test: New Method for Early Detection of Carcinoma of Cervix. M. Hilliard.—p. 235.
Atelectasis. W. R. Wright.—p. 238.
Surgical Treatment of Coarctation of Aorta. G. Murray.—p. 241.
Non-Specific Mesenteric Lymphadenitis. W. E. Austin.—p. 244.
Pentothal Sodium in Relation to Toxic and Convulsive States. R. J. Fraser and R. M. Stringer.—p. 249.
*Etiological Significance of Pulmonary Calcifications at University of Toronto. T. G. Heaton.—p. 252.
Immunization in Practice. G. M. Little.—p. 254.
Management of Common Facial Injuries. H. M. Graham.—p. 259.
Observations on Management of Peptic Ulcer. D. A. Thompson.—p. 261.
Ocular Findings in Congenital Heart Disease. J. L. Kyle.—p. 263.
Chest Movements in Respiratory Diseases. L. Cherniack.—p. 266.
Studies in Pinworm Infections: IV. Tests with P-Benzylphenyl Carbamate in Treatment of Pinworm Infections. M. J. Miller and L. P. E. Choquette.—p. 271.
Clinical-Pathological Conference: Vancouver General Hospital, April 13, 1949. F. S. Brien.—p. 274.
Tuberculostatic Activity of Certain Products of Growth of Penicillin Notatum. H. C. Ballon and A. Guernon.—p. 277.
New Concept of Congestive Failure. G. F. Strong.—p. 279.

Paraaminosalicylic Acid with Streptomycin in Tuberculosis.—Anderson and co-workers compared the clinical responses of 34 patients with active pulmonary tuberculosis treated by sanatorium routine, paraaminosalicylic acid and streptomycin, with the clinical responses of a similar number and type of patients treated by sanatorium routine and streptomycin for similar periods. All patients receiving "combined" therapy were given 10 Gm. of paraaminosalicylic acid daily by mouth, or its equivalent as an aqueous solution of the sodium salt of paraaminosalicylic acid, in addition to 1 Gm. of streptomycin intramuscularly daily in two equally divided doses. There appeared to be a slightly greater therapeutic response in the group receiving "combined" treatment, but this difference was neither pronounced nor constant. The incidence of toxic or side effects attributable to paraaminosalicylic acid were studied on 50 sanatorium patients not suitable for streptomycin therapy who were given 100 cc. of a 10 per cent aqueous solution of the sodium salt of paraaminosalicylic acid, i. e., the equivalent of 10 Gm. of paraaminosalicylic acid, daily by mouth. Only 3 of the 50 patients required discontinuance of the drug because of toxic manifestations appearing during the sixty day course. The incidence of toxic manifestations was approximately the same among 25 patients receiving streptomycin intramuscularly and the sodium salt of paraaminosalicylic acid by mouth as among those receiving the sodium salt of paraaminosalicylic acid alone. Approximately 6 per cent of patients receiving "combined" treatment will probably require discontinuance of the paraaminosalicylic acid because of side effects within the first 60 days of this treatment. The incidence of the emergence of "completely resistant" variants was seen to be delayed in 19 patients receiving "combined" therapy from whom tubercle bacilli could be isolated before and after treatment, when compared with patients receiving streptomycin alone. Blood levels of paraaminosalicylic acid obtained in patients with a dosage of 10 Gm. of the drug suggest that a lower blood concentration of the drug might perhaps serve equally well from the aspect of delaying the onset of streptomycin resistance.

Pulmonary Calcifications.—According to Heaton, pulmonary calcifications were demonstrated in 122 of 8,144 male and female students in chest roentgenograms taken at the University of Toronto in the fall of 1948. This is a much lower incidence of calcification than was observed in most parts of the United States. Sixty-three unselected students showing pulmonary calcification were given skin tests. Thirty-six of these reacted to histoplasmin and 33 to tuberculin. This, together with a growing weight of evidence in the literature, suggests that pulmonary calcification is often due to Histoplasma capsulatum rather than to Mycobacterium tuberculosis. Certain other fungi are also thought to cause pulmonary calcifications. Histoplasmosis is a disease closely resembling tuberculosis, and consequently treatment and control measures are similar for the two diseases. There is nothing to be gained for practical purposes by attempting to differentiate between the two diseases in the state of calcification, but histoplasmosis should be kept in mind in the differential diagnosis of persistent pulmonary infiltrates.

Circulation, New York

1:321-480 (March) 1950

Further Studies of Cardiodynamics of Experimental Intraventricular Communications. J. G. Hawley, R. C. Little and H. Feil.—p. 321.
*Commissurotomy for Mitral Stenosis. R. P. Glover, T. J. E. O'Neill and C. P. Bailey.—p. 329.
Experimental Hypervolemic Heart Failure: Its Bearing on Certain General Principles of Heart Failure. W. Huckabee, G. Casten and T. R. Harrison.—p. 343.
Catheterization of Left Side of Heart in Man. H. A. Zimmerman, R. W. Scott and N. O. Becker.—p. 357.
Dissecting Aneurysm of Aorta: Its Clinical, Electrocardiographic and Laboratory Features: Report of 58 Autopsied Cases. D. C. Levinson, D. T. Edmeades and G. C. Griffith.—p. 360.
Study of Venous Pulse in Tricuspid Valve Disease. A. L. Messer, J. W. Hurst, M. B. Rappaport and H. B. Sprague.—p. 388.
Myocardial Lesions Produced by Digitalis in Presence of Hyperthyroidism: Experimental Study. W. H. Dearing, A. R. Barnes and H. E. Essex.—p. 394.
Circulatory Adjustments to Hypoxemia of Congenital Heart Disease of Cyanotic Type. H. B. Burchell, B. D. Taylor, J. R. B. Knutson and E. H. Wood.—p. 404.
Relationship Between Arterial Oxygen Saturation and Cardiovascular Response to Induce Anoxemia in Normal Young Adults. R. Penneys and C. B. Thomas.—p. 415.
Correlation of Oxygen Saturation of Blood and Changes in Electrocardiogram, Blood Pressure and Heart Rate During Anoxemia Test: Observations on Normal Persons and Patients with Suspected and Manifest Coronary Heart Disease. J. A. L. Mathers and R. L. Levy.—p. 426.
Peripheral Circulatory Changes as Criteria for Hemorrhagic Shock Therapy. B. W. Zweifach.—p. 433.
Studies of Renal Circulation. J. R. Kahn, L. T. Skeggs and N. P. Shumway.—p. 445.
Sustained Hypertension Due to Pheochromocytoma: Report of Case Cured by Removal of Tumor. H. P. Smith Jr., R. B. Logue and D. E. Beard.—p. 454.

Commissurotomy for Mitral Stenosis.—According to Glover and his associates mitral commissurotomy designates the procedure which they employed to reestablish a degree of normal mitral valve function. It consists of an operative approach

UNIVERSITY OF MICHIGAN LIBRARIES

through the left anterior chest wall. The pericardium is incised longitudinally. The valve is located, and the size of the opening and the location of the commissures are determined. The knife is protruded through the orifice, and a backward stroke usually divides the commissure adequately. The finger palpates the opening and gently dilates it. After the finger and knife are withdrawn from the auricle the previously placed purse-string suture is drawn tight. The suture is tied, and the cut edge of the appendage is oversewn. Postoperatively the patient may experience considerable pain for three to four days from the manipulative "pericarditis." This is controlled by opiates. Ambulation is permitted within two to five days. Four very satisfactory results, 1 fair result and 3 deaths have followed commissurotomy for mitral stenosis in 8 cases. The authors feel that, if their present knowledge had been applied to all cases, the mortality might have been lower. Commissurotomy accomplishes relief of mitral stenosis by restoring considerable valve function without the production of additional mitral regurgitation. The left auricular appendage is the most satisfactory avenue of approach to the mitral valve. The auricular appendage must be ligated at the conclusion of the procedure to prevent arterial embolization. An appreciably enlarged left ventricle in a case of supposed "pure mitral stenosis" is indicative of some additional valve lesion (aortic stenosis or regurgitation, or mitral regurgitation) and is contraindicative to commissurotomy. Twenty-two additional cases of advanced mitral stenosis have undergone commissurotomy since this paper was submitted for publication, bringing the total series to 30. Six patients died. In 21 the results have been satisfactory to date.

Diseases of Chest, Chicago

17:125-248 (Feb.) 1950

Bronchial Obstruction. C. Jackson.—p. 125.
Pulmonary Disease, Associated with Cystic Fibrosis of Pancreas. L. B. Dickey.—p. 151.
Surgical Management of Lung Abscess. R. G. Klepser and E. W. Davis.—p. 172.
Electrocardiographic Changes in Pulmonary Collapse: Artificial and Spontaneous Left-Sided Pneumothorax Studied by Conventional and Unipolar Methods. C. Silverberg, R. Kingsland and D. Feldman.—p. 181.
*Treatment of Bronchogenic Carcinoma with Nitrogen Mustard. L. Kent and E. P. Reh.—p. 190.
Slide Culture Method for Streptomycin Sensitivity Testing. M. M. Cummings, M. C. Drummond and H. B. Schwartz.—p. 202.
Principles and Practices in Lobectomy (Including Segmental Resection) and Total Pneumonectomy for Bronchiectasis and Chronic Lung Abscess. F. F. Boyce.—p. 206.
Place of Social Work in Tuberculosis Hospital. A. Hurst, H. Nitzberg and M. Hempel.—p. 226.

Treatment of Bronchogenic Carcinoma with Nitrogen Mustard.—The 19 patients whose cases are reviewed by Kent and Reh were treated for bronchogenic carcinoma with methyl-bis (beta-chloroethyl) amine, also known as HN2. Seven of the 19 patients had an exploratory thoracotomy prior to HN2 therapy and were inoperable, 3 of the 19 had roentgen therapy with poor results. One patient had both roentgen therapy and thoracotomy previously, and 10 of the 19 patients had no previous treatment. The nitrogen mustard was given intravenously through the rubber tubing of apparatus for administration of isotonic sodium chloride solution. A course consisted of four injections of the drug. A daily dose of 0.10 mg. per kilogram of body weight was administered. A hematologic study was performed every second day during treatment and usually twice a week thereafter. Seven of the 19 patients are still alive. Five of the 7 living have anaplastic carcinoma. A good effect was obtained in 2 patients with anaplastic carcinoma. One was still living nine months after nitrogen mustard therapy and the other six months later. Both showed decrease in tumor size and symptoms. Nitrogen mustard treatment often resulted in decrease in the leukocyte and platelet counts, but in no patient did serious complications arise from these effects. Nausea and vomiting occurred in some patients, but the intensity of these symptoms varied greatly. The authors conclude that methyl-bis-(beta-chloroethyl) amine is a useful drug in the treatment of some cases of inoperable bronchogenic carcinoma. Whether nitrogen mustard is more effective than roentgen rays in these cases remains to be seen. Ultimately nitrogen mustard therapy, like irradiation, proves ineffective.

Electroencephalography and Clin. Neurophys., Boston

1:387-530 (Nov.) 1949

SYMPOSIUM: THALAMOCORTICAL RELATIONSHIPS

Organization of Mammalian Thalamus and Its Relationships to Cerebral Cortex. J. E. Rose and C. N. Woolsey.—p. 391.
Diffuse Projection Systems: Integrative Action of Thalamic Reticular System. H. Jasper.—p. 405.
Potential Phenomena in Thalamus and Cortex. G. H. Bishop.—p. 421.
Electrical Activity of Subcortical Areas in Epilepsy. R. A. Hayne, L. Belinson and F. A. Gibbs.—p. 437.
Analysis of Sensory Responses of Acoustic Cortex. F. Bremer and V. Bonnet.—p. 447.

Gastroenterology, Baltimore

14:201-342 (Feb.) 1950

SYMPOSIUM ON SOME ASPECTS OF PEPTIC ULCER

Localized Walled-Off Gas-Pocket Due to Perforation Complicating Peptic Ulceration and Gastric Carcinoma. M. Feldman.—p. 201.
*Correlation of Insulin Test Studies and Clinical Results in Series of Peptic Ulcer Cases Treated by Vagotomy. V. A. Weinstein, F. Hollander, F. U. Lauber and R. Colp.—p. 214.
Study of Effect of Orally Administered Enterogastrone Preparation on Clinical Course of Patients with Duodenal Ulcer. E. E. Gambill, C. G. Morlock, H. R. Butt and E. E. Wollaeger.—p. 228.
Mechanism of Post-Gastrectomy Dumping Syndrome. T. E. Machella.—p. 237.
Annual Report: National Committee of American Gastroenterological Association for Study of Peptic Ulcer. D. J. Sandweiss.—p. 256.
Late Complications Following Gastroenterostomy for Infantile Pyloric Stenosis: Report of 2 Cases. J. W. Baker, C. C. Pearson and K. E. Berger.—p. 258.

SYMPOSIUM ON GASTRIC NEOPLASMS

Diagnosis of Gastric Cancer by Cytologic Examination of Gastric Washings. J. M. Swarts, A. B. Ragins, A. Bernstein and J. Meyer.—p. 265.
Differential Diagnosis of Benign and Malignant Lesions of Stomach by Means of Flexible Operating Gastroscope. E. B. Benedict.—p. 273.
Gastric Polyps. J. B. Carey and L. J. Hay.—p. 280.
Role of Gastroscopy in Diagnosis of Upper Gastrointestinal Hemorrhage of Obscure Origin. A. M. Olsen and H. J. Moersch.—p. 292.
Orally Effective Quaternary Amine, Banthine, Capable of Reducing Gastric Motility and Secretions. F. H. Longino, K. S. Grimson, J. R. Chittum and B. H. Metcalf.—p. 301.

Insulin Test Results Following Vagotomy.—Weinstein and his associates report the results of postoperative insulin tests in 123 peptic ulcer patients who were treated by vagotomy with or without gastroenterostomy or subtotal gastric resection. They obtained positive reactions to postoperative tests in 29 per cent of the patients. Reports of studies from other clinics indicate similar experience. The authors believe that a large percentage of physiologically incomplete vagotomies is due most likely to the variations in the anatomy of the vagus nerve. The existence of nonvagal cholinergic secretory pathways is also considered. Clinical results analyzed with regard to either ulcer healing or motor disturbances show no correlation with postoperative insulin test data. The authors conclude that the insulin test cannot be used to prognosticate clinical results of vagotomy.

J. of American Med. Woman's Assn., Nashville, Tenn.

5:45-88 (Feb.) 1950

Psychosomatic Principles: Cardiac Illustrations. J. A. McGeachy.—p. 45.
Anaesthesia for Patients with Heart Disease. M. W. Goldsmith.—p. 51.
*Electrograms Obtained During Cardiac Catheterization in Man. B. Rader.—p. 55.
Use of Quinidine Following Myocardial Infarction. A. H. Clagett Jr.—p. 60.
Adrenal Cortex: II. Clinical Pathology. P. B. Tudbury.—p. 61.

Electrograms During Catheterization.—Rader says that in the electrocardiographic laboratory of the New York University College of Medicine, the potentials in the right side of the heart and in the pulmonary artery and its branches were studied by means of two string galvanometers. Simultaneous records can thus be made of activity in two points in the heart, or of an intracardiac point and some outside lead. The electrode used is silver, cylindrical, about 1 mm. in diameter and 3 mm. long. The wire connected to it is insulated by a catheter about 100 cm. long. The proximal end of the wire is connected to the galvanometer. The electrode is usually introduced through the left antecubital vein and is placed in the pulmonary artery or one of its branches under fluoroscopic guidance. The electrode is slowly withdrawn from the artery while the electro-

grams are being recorded simultaneously with some indirect lead. The author describes atrial and ventricular electrograms and shows that by the technic of intracardiac electrocardiography it is possible to analyze in some measure the excitatory process of the intact human heart. Some theoretic aspects of excitation have been confirmed.

Journal of Bacteriology, Baltimore

19:1-136 (Jan.) 1950. **Partial Index**

Studies on Bacteriophage Infection Cycle. W. Gold and D. W. Watson. —p. 13.
Action of Streptomycin: IV. Fatty Acid Oxidation by Mycobacterium Tuberculosis, Avian Type. E. L. Oginsky, P. H. Smith and M. Solotorovsky.—p. 29.
All-Glass Apparatus for Continuous Cultivation of Yeast Under Anaerobic Conditions. T. J. B. Stier, R. E. Scalf and M. C. Brockmann.—p. 45.
Electron Microscopy of Herpes Simplex. L. L. Coriell, G. Rake, H. Blank and T. F. M. Scott.—p. 61.
Cytological Study of Pleomorphic Strain of Azotobacter with Electron and Phase Microscopes and Robinow Nuclear-Staining Technique. A. Eisenstark, K. J. McMahon and R. Eisenstark.—p. 75.

59:137-316 (Feb.) 1950. **Partial Index**

Use of Perchloric Acid in Bacterial Cytology. W. A. Cassel.—p. 185.
Selection of Genetic Recombinations with Bacterial Growth Inhibitors. J. Lederberg.—p. 211.
Influence of Zinc, Iron, Copper, and Manganese on Production of Citric Acid by Aspergillus Niger. N. Tomlinson, J. J. R. Campbell and P. C. Trussell.—p. 217.
Pantothenic Acid Studies: VIII. Growth of Microorganisms and Counteraction of Antimetabolites with Pantothenic Acid Conjugate (PAC). T. E. King and V. H. Cheldelin.—p. 229.
Effect of Surface-Active Agents on Color Variation in Aging Populations of Serratia Marcescens. M. I. Bunting.—p. 241.
Radioactive Studies of Phosphorus Metabolism of Escherichia Coli. L. W. Labaw, V. M. Mosley and R. W. G. Wyckoff.—p. 251.
Observations on Metabolism of Strain of Neisseria Catarrhalis. C. Fitting and H. W. Scherp.—p. 277.
Mutants of Azotobacter That do Not Fix Nitrogen. O. Wyss and M. B. Wyss.—p. 287.
Persistence of Individual Strains of Escherichia Coli in Intestinal Tract of Man. H. J. Sears, I. Brownlee and J. K. Uchiyama.—p. 293.

Journal of Investigative Dermatology, Baltimore

14:71-152 (Feb.) 1950

Treatment of Cutaneous Blastomycosis with Propamidine: Preliminary Report. J. W. Colbert Jr., M. J. Strauss and R. H. Green.—p. 71.
Dermatitis Medicamentosa Due to Undecylenic Acid. L. M. Nelson. —p. 75.
Cigarette Paper Dermatitis. M. J. Tye.—p. 77.
Prolonged Local Anesthesia by Injection with Procaine Base: Preliminary Report. S. Monash.—p. 79.
*Tentative Classification of Psychological Factors in Etiology of Skin Diseases. R. Brandt.—p. 81.
Studies of Sweating: III. Experimental Factors Influencing Function of Sweat Ducts (Preliminary Report). M. B. Sulzberger, F. Herrmann, R. Keller and B. V. Pisha.—p. 91.
Serum Proteins in Diseases of Connective Tissue: Electrophoretic Study. S. A. Walker and E. P. Benditt.—p. 113.
Neurosyphilis: Comparative Treatment with Penicillin Alone and Penicillin Plus Malaria. W. F. Spiller and J. Stewart.—p. 121.
Chemistry of Feulgen Reaction and Related Histo- and Cytochemical Methods. E. D. DeLamater, H. Mescon and J. D. Barger.—p. 133.

Psychologic Factors in Skin Disease.—In this classification Brandt bases the characterization of each group on accepted or self-evident facts, if this is feasible. As an example of nonspecific mental elicitation he mentions some cases of herpes simplex. "Nervous" pruritus is cited as an example of sensory neurosis. Washing eczema in compulsion neurosis is an example of damage to the skin by acts of the patient in sensory or other neurosis. Involvement of the skin "by detour," i. e., consequent to primary involvement of another organ, is typified by eruptions in psychogenic ulcerative colitis. Pathologic increase of the inherent psychosomatic reactions of the skin exists in "nervous" hyperhidrosis of the hands. There is production of a skin disease via the inherent psychosomatic reactions, as in recrudescence of dermatophytosis of the toes resulting from psychogenic hyperhidrosis. Certain cases of herpes simplex in which recurrence happens from a specific mental stimulus represent the utilization of a nonpsychogenic skin disease by mental forces. Direct mental influence in the production of a skin disease (chiefly allergic) is examplified by urticaria that appears in a specific situation. There is a symbolic production of a skin disease as a conversion phenomenon, typical of which are religious stigmas.

Journal of Nat. Cancer Inst., Washington, D. C.

10:565-808 (Dec.) 1949. **Partial Index**

Effect of Vascular Occlusion on Transplanted Tumors. J. S. Youngner and G. H. Algire.—p. 565.
Remote-Controlled Radium Emanation Plant and Automatic Measuring Apparatus for Gold Implants. J. E. Rose and R. W. Swain.—p. 605.
Hematopoiesis in Spleen of Tumor-Bearing Hamsters. M. A. Kelsall. —p. 625.
Catecholase and Catecholase-Inhibitor Activity of Human Blood Sera. B. Shacter and M. B. Shimkin.—p. 637.
Comparative Stability of Agent of Chicken Tumor I in Phosphate and Borate Buffers During Incubation for Three Hours at 37 C. W. R. Bryan, M. E. Maver, J. B. Maloney and others.—p. 647.
Preparation of p-Dimethylaminoazobenzene Containing Isotopic Carbon in Dimethylamino Group. W. S. Fones and J. White.—p. 663.
Eclampsia-Like Condition in Pregnant Rats Injected with Progesterone. A. Symeonidis.—p. 711.
Antiproteolytic Reaction, Iodoacetate Index and Least Coagulable Protein Reactions in Relation to Malignant Neoplasia: Correlation of Tests. E. E. Cliffton.—p. 719.

Journal of Pediatrics, St. Louis

36:271-398 (March) 1950

*Generalized Cytomegalic Inclusion Disease. J. P. Wyatt, J. Saxton, R. S. Lee and H. Pinkerton.—p. 271.
Streptomycin and Promizole Combined Therapy in Tuberculous Meningitis in Children. T. F. Su and M. Y. Wu.—p. 295.
Rocky Mountain Spotted Fever Treated with Chloramphenicol and Aureomycin. W. A. Reilly and A. M. Earle.—p. 306.
Typhoid and Paratyphoid Fever: Review of Four Cases Treated with Chloromycetin. M. Birdsong, J. E. Mitchell and W. W. Waddell Jr. —p. 310.
Study of Three Hundred Cases of Diarrhea in Infants and Children During Summer and Fall of 1948. J. D. Levinson and W. B. Raycraft.—p. 316.
Nephrolithiasis and Nephrocalcinosis with Calcium Oxalate Crystals in Kidneys and Bones. J. S. Davis, W. G. Klingberg and R. E. Stowell.—p. 323.
Plasma "Alkaline" Phosphatase Activity: I. Normative Data for Growing Children. L. C. Clark Jr. and E. Beck.—p. 335.
*Intelligence Quotient of Children Who Have Recovered from Erythroblastosis Fetalis. J. M. Gerver and R. Day.—p. 342.
Natal and Neonatal Teeth: Review of Twenty-Four Cases Reported in Literature. M. Massler and B. S. Savara.—p. 349.
Myocardial Fibrosis in Infancy. A. E. Schefrin.—p. 360.

Generalized Cytomegalic Inclusion Disease.—Wyatt and co-workers report 6 cases of generalized cytomegalic inclusion disease (salivary gland virus infection) in 1 stillborn infant and in 5 infants who died five weeks to 15 months after birth. Characteristic nuclear and cytoplasmic inclusions were observed at necropsy in the salivary glands and in various organs. The study of these 6 cases with a review of 58 previously reported cases in infants led to the following conclusions: Infection with a specific virus is usually the primary cause of fetal and infantile death. The morphology and cytology of the inclusion-bearing cells is pathognomonic of the disease. The virus should be classed as necrotizing rather than saprophytic. The clinical and pathologic pictures are variable, depending on the intensity of viral activity in different organs and tissues. Death may result in uncomplicated cases from viral pneumonia, viral nephrosis, viral hepatitis, viral enteritis and presuambly from other mechanisms as yet undiscovered. Death may result from viral toxemia in patients with visceral involvement but without associated pathologic changes. Viral hepatitis caused cirrhosis of the liver in 2 patients. Ulcerative enteritis associated with characteristic inclusions was observed in 1 patient with a clinical picture of diarrhea. This is the first instance in which infantile enteritis of viral causation was definitely established. Inclusion-bearing cells were found in the brain in the subependymal regions in 2 patients. The alterations were characteristic of viral encephalitis in 1 patient. Since the infection occurs during intrauterine life, it may be an unrecognized cause of fetal abnormalities and early fetal death. Exfoliative cytologic studies of the urine are suggested as a possible method for antemortem diagnosis, because of the frequent massive desquamation of inclusion-bearing cells into the renal tubules.

Intelligence Quotient After Erythroblastosis Fetalis.—Gerver and Day gave the Stanford-Binet intelligence test to 68 pairs of children, the younger child in each pair having had erythroblastosis fetalis and the older having escaped. The older siblings served as a control group with the closest possible hereditary and environmental background. None of these children had any motor nerve difficulties, and kernicterus had not been diagnosed in any of them. The average intelligence

UNIVERSITY OF MICHIGAN LIBRARIES

of the children recovered from erythroblastosis fetalis was lower than that of their unaffected older brothers or sisters. Statistical analysis indicated that the inferiority is not likely to have resulted from chance or from the circumstance that the affected child was always younger than his control sibling. The extent of the impairment is slight, the mean difference in the intelligence quotient being only 11.8, which indicates that the prognosis for a child who has apparently recovered from erythroblastosis fetalis without suffering motor nerve injury is good. The data presented do not distinguish between a specific effect of the Rh antibody and a nonspecific one, such as might be operating in any illness in the newborn.

Journal Pharmacology & Exper. Therap., Baltimore

98:121-206 (Feb.) 1950. **Partial Index**

Synthetic Analgesics: I. Methadone Isomers and Derivatives. N. B. Eddy, C. F. Touchberry and J. E. Lieberman.—p. 121.
Renal Hemodynamic Effects of Dihydroergocornine (DHO-180) in Man. A. P. Crosley Jr., A. J. Cummins, H. G. Barker and J. K. Clark. —p. 138.
Effect of Intramuscular Dihydroergocornine on Cerebral Circulation in Normotensive Patients. J. H. Hafkenschiel, C. W. Crumpton and J. H. Moyer.—p. 144.
Electrolyte and Nitrogen Balance Studies in Patients Receiving Nitrogen Mustard. T. S. Danowski, L. Greenman, R. C. Gow and others. —p. 147.
Urinary Antibacterial Activity Following Oral Administration of Nitrofurans with Detailed Observations on 5-Nitro-2-Furaldehyde 2-(2-Hydroxyethyl) Semicarbazone. H. E. Paul and R. C. Bender.—p. 153.
Assay in Man of Chemical Fractions of Veratrum Viride, and Identification of Pure Alkaloids Germitrine and Germidine as Potent Hypotensive Principles Derived from Drug. E. D. Freis, J. R. Stanton and F. C. Moister.—p. 166.
Metabolic Fate of Pentobarbital: Isotope Dilution Experiments with Urine After Administration of Labeled Pentobarbital. E. W. Maynert and H. B. Van Dyke.—p. 174.
Quantitative Studies on Autonomic Actions of Curare. A. C. Guyton and R. C. Reeder.—p. 188.

Journal of Urology, Baltimore

63:195-372 (Feb.) 1950. **Partial Index**

Giant Hydronephrosis. M. S. S. Earlam.—p. 195.
Surgical Emergencies Caused by Simple or Solitary Renal Cyst. N. B. Powell.—p. 203.
Leukoplakia of Renal Pelvis. C. P. Armstrong Jr., H. C. Harlin and C. A. Fort.—p. 208.
Transection of Ureter Following Uterine Instrumentation. F. A. Beneventi and F. P. Twinem.—p. 224.
Urographic Study of Upper Part of Urinary Tract Prior to and After Cutaneous Ureterostomy and Ureterosigmoidostomy. T. L. Pool and E. N. Cook.—p. 228.
Simple Cystectomy for Cancer of Urinary Bladder; One Hundred Consecutive Cases: Two Years Later. V. F. Marshall and W. F. Whitmore Jr.—p. 232.
Regional Gland Dissection for Carcinoma of Bladder: Technique for One-Stage Cystectomy, Gland Dissection, and Bilateral Uretero-Enterostomy. W. F. Leadbetter and J. F. Cooper.—p. 242.
Ureteroenteral Anastomosis. R. C. Graves and W. T. Buddington. —p. 261.
Ureterosigmoid Anastomosis. J. J. Cordonnier.—p. 276.
Technique of Total Cystectomy (Perineo-Abdominal-Pancystectomy) in Male. C. D. Goodhope.—p. 294.
*Stilbamidine in Transitional Cell Carcinoma of Bladder. F. G. Harrison, H. L. Warres and J. A. Fust.—p. 299.
Use of Anticoagulants Following Transurethral Prostatic Resection. J. H. Olwin, F. B. Papierniak and J. W. Merricks.—p. 303.
Transurethral Resection for Relief of Urinary Retention in Patients with Neurologic Lesions. W. J. Baker, J. F. Carney and F. P. DeRosa.—p. 309.
Vascular Perfusion of Prostate Gland. P. B. Hudson, W. W. S. Butler III, H. Brendler and W. W. Scott.—p. 319.
Study of Enzyme Acid Phosphatase and Its Possible Role in Intermediary Carbohydrate Metabolism of Prostate Gland and Its Secretion in Dog and Man. P. B. Hudson and W. W. S. Butler III.—p. 323.
*Carcinoma of Prostate: Cytological Study. W. F. Boyer.—p. 334.

Stilbamidine in Carcinoma of Bladder.—Harrison and co-workers treated 2 patients with advanced transitional cell carcinoma of the bladder with stilbamidine diisethionate. The dosage, as advocated by Snapper, was 50 mg., followed in two days by 100 mg. Thereafter 150 mg. was given every other day or daily. These cases were far advanced, and pronounced clinical improvement was not to be expected. Comparison of the microscopic sections before and after treatment showed no cytotoxic action of the drug on the tumors. Paraplegia developed in 1 patient. Although the paralysis cannot be definitely attributed to stilbamidine, other such cases have been reported, and the possibility remains that this is a side effect.

Cytologic Study for Carcinoma of Prostate.—Boyer studied the prostatic secretions of 198 men utilizing the Papanicolaou technic. Carcinoma was established in 44, and was suspected in 17 others. Boyer discusses the diagnostic cytologic criteria and the appearance of the normal cellular elements in prostatic secretions. His study indicated that, while it is possible to recognize malignant cells in smears of the prostatic secretions fixed and stained by the Papanicolaou technic, the likelihood of the discovery of diagnostic cells from early and unsuspected carcinoma is so slight as to render the smear method unreliable as a routine screening test for men in the cancer age group. The method yielded a high percentage of false negative reports among the known cancer cases and failed to detect malignant changes in the cases of suspected cancer and among 97 men in the cancer age group. The author concludes that frequent rectal examination of men over 45 years of age and more frequent and earlier use of open perineal biopsy remain the principal methods of early diagnosis of carcinoma of the prostate.

Maine Medical Association Journal, Portland

41:29-60 (Feb.) 1950

Calcium Deficiency in Infants and Children. G. E. Dash.—p. 29.
Intra-Abdominal Hemorrhage. P. O. Gregory.—p. 31.
Ophthalmoscopic Diagnosis of Importance to Medical Man as Seen in Retinal Blood Vessels. E. B. Spaeth.—p. 34.
*Duodenal Ulcers Occurring in Twins. J. P. Goodrich and P. O. Gregory. —p. 40.
Hydronephrosis Without Urinary Tract Manifestation. J. P. Goodrich. —p. 41.

Duodenal Ulcers in Twins.—Goodrich and Gregory report the occurrence of peptic ulcers in identical twins with almost identical symptoms and identical medical treatment without response. The first, with symptoms of five years' duration, had a moderately dilated stomach, indicating a slight obstruction and a moderate degree of anemia. The second, with symptoms of two years' duration, had no stomach dilatation and no anemia. The location and size of the duodenal ulcers were the same as determined by roentgen examination and surgical intervention.

Medical Annals of District of Columbia, Washington

19:1-60 (Jan.) 1950

Newer Concepts in Surgery of Pancreas. C. G. Child III.—p. 1.
Environmental Factors in Etiology of Cancer. W. C. Hueper.—p. 10.
Chemotherapy of Cancer. J. H. Burchenal.—p. 17.
Use and Abuse of Estrogens. J. P. Pratt.—p. 20.
Sigmund Freud and Psychoanalysis. E. Podolsky.—p. 24.

19:61-120 (Feb.) 1950

*Rib Puncture: Comparison with Sternal Site for Obtaining Bone Marrow. G. A. Moulton and J. J. Rheingold.—p. 61.
Metabolic Aspects of Urinary Calculi. L. H. Kyle.—p. 66.
Emotions and Gynecological Pain. F. S. Rogers.—p. 72.
Use of Ergot-Caffeine Suppositories in Migraine. L. S. Blumenthal and M. Fuchs.—p. 77.
Treatment of Cardiac Arrhythmias. S. Bellet.—p. 80.

Rib Puncture for Obtaining Bone Marrow.—Moulton and Rheingold report on the use of rib puncture as an additional means for obtaining adequate sampling of marrow. They cite observations on 25 patients who were hospitalized in a hematology-lymphoma ward and from whom marrow was required for study. Punctates of both the sternum and rib were examined. The results were closely similar.

New Orleans Medical and Surgical Journal

102:333-378 (Jan.) 1950

SYMPOSIUM ON LESIONS OF THE SMALL BOWEL

Diseases of Jejunum and Ileum: Diagnosis and Treatment. H. L. Weinberger.—p. 333.
Pathology of Certain Inflammatory Lesions and Neoplasms of Small Bowel. W. H. Harris Jr.—p. 340.
Roentgenologic Manifestations of Small Intestine. F. H. Marek. —p. 347.
Indications for Surgical Intervention. S. Karlin.—p. 353.
Surgical Treatment of Peptic Ulcer, Including Gastrectomy and Vagus Nerve Section. J. G. Snelling.—p. 358.
Abdominal Emergencies in Infancy and Childhood. M. W. Everhart. —p. 361.
Conservative Management of Chronic Cervicitis. O. V. Prejean.—p. 365.

New York State Journal of Medicine, New York

50:369-496 (Feb. 15) 1950

Partial Nephrectomy. P. R. Roen.—p. 423.
Blood and Urine Levels Achieved in Intravenous Administration of Aureomycin. A. Rottino, W. E. Philip and M. Sanders.—p. 429.
"L. E." Cell in Bone Marrow in Disseminated Lupus Erythematosus. M. H. Stich.—p. 433.
Elusive Mental Cases: Slight Paranoia. B. Liber.—p. 435.
*Abdominal Distention: Treatment with Stigminene Bromide, New Cholinergic Drug. J. C. Whitaker and L. T. Wright.—p. 437.
Failure of Vitamin E to Alleviate Signs and Symptoms of Congestive Heart Failure. H. Berger.—p. 441.
Anesthetic Practice in Prolonged Surgery. G. Wallace.—p. 444.
Neurocirculatory Asthenia. J. A. Mishkin.—p. 447.
Vaginal Delivery with Pudendal Block. J. Schwartz and M. L. Brandt.—p. 449.

Treatment of Abdominal Distention with a New Cholinergic Drug.—Whitaker and Wright report on stigminene bromide, 1-benzyl-3-dimethylcarbamyloxy-pyridinium bromide. Experimental studies with this drug revealed that it was less toxic than neostigmine methylsulfate. The clinical investigation of the drug had the aim to determine its value as a preventive measure against paralytic ileus and as a therapeutic measure for established abdominal distention. It was used in 100 cases, always intramuscularly. There were 83 abdominal, 7 genitourinary, 2 thoracic and 2 gynecologic operations. Six patients had no operation. The authors found that the drug is highly satisfactory both prophylactically and therapeutically. The drug has a selective effect on the musculature of the gastrointestinal tract and of the bladder.

Northwest Medicine, Seattle

49:77-148 (Feb.) 1950

Concept of Poliomyelitis Based on Observations and Treatment of 6000 Cases in Four-Year Period. A. G. Bower.—p. 103.
Pericardial Celomic Cysts. S. R. Gillespie and L. F. Martinson.—p. 107.
Eye Headache and Discomfort Not Corrected by Glasses. W. N. M. Girling.—p. 110.
Omphalocele. J. M. Boyles.—p. 112.
*Suppression of Lactation in Puerperae by Ethinyl Estradiol. R. H. Stewart.—p. 114.
Intrathecal Use of Vasoconstrictors to Prolong Spinal Anesthesia. J. J. Bonica and P. H. Backup.—p. 115.

Suppression of Lactation.—Stewart found that lactation was inhibited by the use of ethinyl estradiol more successfully than by any method previously employed. It was the method preferred by the patients as most convenient and comfortable and by the nursing staff as requiring the least individual attention and expenditure of materials. Ethinyl estradiol was used through the past four years in an average of about 150 cases per year. Eighty-four per cent of these patients left the hospital with the breasts soft, while 16 per cent had varying stages of firmness. The latter group consisted mainly of those who attempted to nurse and therapy had not been instituted until the third to sixth day.

Ohio State Medical Journal, Columbus

46:201-300 (March) 1950

*Effect of Vitamin B_{12} on Hematologic and Neurologic Manifestations of Pernicious Anemia. J. F. Mueller, T. Jarrold, V. R. Hawkins and R. W. Vilter.—p. 225.
Causes of Failures in Patients in Whom Resuscitation Was Attempted. F. M. Barry and F. R. Mautz.—p. 230.
Low Calcium and Mineral Oil Treatment of Poliomyelitis—Three Year Report. B. C. Wiley.—p. 234.
Unusual Fracture of Cervical Spine with Marie-Strumpell Disease. H. R. Hathaway.—p. 236.
Sympathectomy and Phlebectomy for Post-Phlebitic Ulcer. R. Holtz and F. M. Douglass Jr.—p. 237.
Early Management of Face and Jaw Injuries. B. C. Martin.—p. 241.
Diagnosis and Treatment of Acute Thrombophlebitis. L. N. Atlas.—p. 243.
Primary Torsion of Great Omentum: Case Report. D. B. Gilliam.—p. 246.
Purpose of Receiving Hospitals. E. E. Elder.—p. 247.

Effect of Vitamin B_{12} on Pernicious Anemia.—Mueller and his associates report on 7 patients with pernicious anemia treated with vitamin B_{12} during the past year. They conclude that vitamin B_{12} is as effective as liver extract in the treatment of pernicious anemia in relapse. Complete remission was induced in the blood, bone marrow and the neurologic system. Glossitis and bilirubinemia disappeared. There was no evidence that vitamin B_{12} is more effective than liver or will induce a response qualitatively or quantitatively different from liver. There was no evidence that it will be effective where liver extract is not. In the experience of these authors liver-extract-refractory megaloblastic anemia and the anemia of cirrhosis are unaffected by vitamin B_{12}, and in the experience of others the same is true of leukemia and any other type of liver refractory anemia. The chief indication for the use of vitamin B_{12} is in the patient with pernicious anemia who is sensitive to liver extract. Patients without neurologic disease were given 4 micrograms or multiples thereof in single doses. The total hematologic effect of each dose was observed before additional material was given. This method was followed until clinical remission occurred. Thereafter the patients were maintained on 3 to 5 micrograms per week. The patients with neurologic manifestations were given 4 to 5 micrograms of vitamin B_{12} every other day until a satisfactory clinical response was attained. Thereafter they were maintained on 10 to 20 micrograms per week, depending on individual needs. All injections were given intramuscularly. The fact that the drug is effective in such small doses suggests that vitamin B_{12} acts as an enzyme or catalyst.

Pediatrics, Springfield, Ill.

5:171-374 (Feb.) 1950

Kidney Function in Young Infants. H. L. Barnett.—p. 171.
"Green Stool Syndrome" of Newly Born Infant. I. J. Greenblatt, H. Block, R. D. Turin and S. D. Sternberg.—p. 180.
Analysis of Fetal and Neonatal Deaths in 4,117 Consecutive Births. H. C. Miller.—p. 184.
Analysis of Premature Mortality Rates. E. B. Plattner, A. F. Stein and H. X. Gerber.—p. 193.
Experimental Use of Methyl Testosterone in Premature Infants: Preliminary Report. J. N. Seitchik and H. A. Agerty.—p. 200.
Long Bone Involvement in Sickle Cell Anemia. J. R. Almklov, A. E. Hansen and M. Schneider.—p. 204.
Comparison of Nutritive Value of Mineral-Enriched Meat and Milk. I. McQuarrie and M. R. Ziegler.—p. 210.
Treatment of Malaria in Children with Chloroquine. T. L. Nelson and G. J. Conlin.—p. 224.
Etiologic Factors in Tetany of Newly Born Infants. L. I. Gardner, E. A. MacLachlan, W. Pick and others.—p. 228.
Palmar Dermatoglyphics in Mongolism. H. Cummins, C. Talley and R. V. Platou.—p. 241.
Study of Cardiac Enlargement in Infancy with Case Reports of Reversible Enlargement. H. Green and J. Apley.—p. 249.
Current Problems in Deaths of Persons Under 20 Years of Age: Evidenced by Study of Situation in Past Decade in New York City. L. Baumgartner and V. Pessin.—p. 257.
Aureomycin in Treatment of Experimental and Clinical Infections with H. Influenzae, Type B. C. A. Chandler and H. L. Hodes.—p. 267.
Clinical Observations on Use of Aureomycin in Varicella. M. M. Mazursky, L. Wright and M. Weichsel.—p. 276.
*Chemotherapy of Tuberculosis in Children. E. M. Lincoln and T. W. Kirmse.—p. 280.

Chemotherapy of Tuberculosis in Children.—Lincoln and Kirmse report that chemotherapy of tuberculosis in the Chest Clinic of the Children's Medical Service of Bellevue Hospital began in 1944, with the use of promizole® (4,2'-diaminodiphenyl-5'-thiazolylsulfone). Five patients with meningitis treated with the drug died. Ten patients with miliary tuberculosis were treated with promizole,® but in 3 the drug had to be discontinued. The remaining 7 were treated for longer periods; 2 of these children died, and the other 5 were well two to four and one-half years later. Promizole® has the advantage of ease of administration and relatively little toxic action. Ten children with miliary tuberculosis were treated with streptomycin and promizole.® All except 1 of these children were given 1 Gm. of streptomycin daily by intramuscular injection for 120 days. Promizole® was given four times daily by mouth in doses to obtain a blood level of 1 to 3 mg. per hundred cubic centimeters. One patient died six days after therapy was begun; a second patient died of tuberculous meningitis after recovery from miliary tuberculosis. The remaining 8 patients were well six to 23 months later. Combined therapy effected a cure in an average of nine weeks, as compared to eight months with treatment with promizole® alone. Relapse of miliary tuberculosis has not occurred either in patients treated with promizole® alone or combined with streptomycin. Treatment combining streptomycin and promizole® was undertaken in order to utilize the rapid action of streptomycin with the prolonged bacteriostatic action of the sulfone. Eighteen patients with tuberculous meningitis were treated with streptomycin

UNIVERSITY OF MICHIGAN LIBRARIES

and promizole®; 13 survived, 8 of them for more than a year. The most encouraging observation is that so far the general behavior of all the survivors is well within normal limits; only 4 have physical handicaps, and none of these are severe.

Plastic and Reconstructive Surgery, Baltimore

5:1-112 (Jan.) 1950

*Role of Switched Lower Lip Flap in Upper Lip Restorations. V. P. Blair and G. S. Letterman.—p. 1.
Plastic Peregrinations. D. R. Millard Jr.—p. 26.
History of American Association of Plastic Surgeons. F. A. Figi.—p. 54.
Nicotinic Acid and Epinephrine Test for Determining Source of Blood Supply of Delayed Skin Flaps. G. A. Olander.—p. 58.
Restoration of Missing Ear. L. T. Byars and McC. DeMere.—p. 66.
Xanthoma and Giant Cell Tumor of Hand. T. W. Stevenson.—p. 75.
Quick Pressure Dressing for Large Burned Areas. H. Marino.—p. 88.
"Gauze Technique" in Skin Grafting: Quick Method in Applying Dermatome Grafts. L. Mir Y Mir.—p. 91.
Blepharoptosis: Blepharoplasty by Modified Wiener-Lexer Technique. R. Farina and P. de T. Piza.—p. 97.

Switched Lower Lip Flap for Upper Lip Restoration.—Blair and Letterman report a number of instances in which a full thickness flap was switched from the lower lip to the upper or beyond. Most patients had an upper advancing denture to give the desired curves and to bold the upper lip forward in proper relation to the lower. In all but 1 instance there were secondary corrections of various types of harelip, and the majority had had more or less complicating attempts at correction before coming to the authors. The first case is unique in that it resulted from an automobile accident and in that the remaining fragments of the upper lip have been mobilized by crescentic cheek excisions that bordered the alae. Most of the cases had a real protrusion of the lower lip because of the transverse shortening of the upper lip; the switch gave both needed fulness to the upper lip and better symmetry to the lower. Before incising the lower lip, one must determine the excess available in it as well as the width and length of the necessary flap. A tentative plan is to mark off on the mucocutaneous border of the lower lip the amount desired for transplant and then to draw each of these marks in turn to a little beyond the midline. This procedure will give a fairly good idea of the amount available for the upper lip without too much distortion of the lower.

Public Health Reports, Washington, D. C.

65:195-230 (Feb. 17) 1950

*Promacetin in Treatment of Leprosy: Progress Report. F. A. Johansen, P. T. Erickson, R. R. Wolcott and others.—p. 195.
Eight New Salmonella Types. J. Watt, T. DeCapito, P. R. Edwards and others.—p. 208.
Factors Affectnig Hospital Construction in High Priority Areas. L. S. Reed, H. Hollingsworth and A. M. Baney.—p. 217.

65:231-266 (Feb. 24) 1950

Effects of DDT Mosquito Larviciding on Wildlife: V. Effects on Fishes of Routine Manual and Airplane Application of DDT and Other Mosquito Larvicides. C. M. Tarzwell.—p. 231.

65:267-314 (March 3) 1950

Study of Tuberculosis Control in Philadelphia: Introduction. R. E. Teague.—p. 269.
I. Social Services for Tuberculous and Their Families. R. B. Taylor.—p. 279.

Promacetin® in Treatment of Leprosy.—According to Johansen and his associates promacetin® (sodium 4,4'-diaminodisulfone-2-acetylsulfonamide) is a sulfone closely related chemically to glucosulfone sodium (promin®), diasone,® (sulfoxone sodium) and sulphetrone (4:4'-bis[gamma-phenyl-N-propylaminodiphenylsulfone-tetrasodium]). It is of relatively low toxicity, because it does not break down into diaminodiphenylsulfone, which is the parent substance of promin,® diasone,® sulfetrone and promacetin.® This parent substance is much more toxic than any one of these derivatives. Even with massive oral doses the blood level of promacetin® will seldom attain dangerous proportions. These features of promacetin® together with the evidence that it has antileprotic properties with oral administration, induced the authors to further investigate its possibilities in the treatment of leprosy. Promacetin® is soluble up to 3 per cent in water at room temperature. The clinical material for this preliminary evaluation of the drug included 27 patients—26 with lepromatous and 1 with tuberculoid disease. The oral dose, given at mealtime, was gradually increased from 0.3 Gm. to 4 Gm. daily. The improvement of skin and mucous membrane lesions was uniform, universal and sustained. Reduction in the number of leprosy bacilli in the skin and mucous membrane followed clinical improvement. Skin smears commenced to show a noticeable reduction of bacilli at the end of a year's treatment, and many patients had no bacilli in the mucous membrane at this time. Promacetin® was well tolerated. Slight depression of the erythrocyte count may occur during the first few weeks of treatment, but in this series unless other complications of the disease were present such depressed counts usually returned to the original level spontaneously. Renewed clearing of apparently stationary residual lesions after promacetin® therapy in patients previously treated with sulfones suggests that a wider application should be made of alternating or combined treatments in leprosy.

Southern Medical Journal, Birmingham, Ala.

43:181-276 (March) 1950. **Partial Index**

Comparison of Rooming-In Versus Standard Nursery Technic. W. A. Ruch.—p. 181.
*Effectiveness of Alabama's Mass Blood Testing Program. W. H. Y. Smith and D. G. Gill.—p. 185.
Recent Advances in Antibiotic Therapy with Special Reference to Aureomycin and Chloramphenicol. H. F. Dowling and M. H. Lepper.—p. 190.
Prevention and Treatment of Severe Penicillin and Other Drug Reactions. J. W. H. Rouse.—p. 195.
Rheumatic Fever in Tennessee. L. J. Koenig, T. S. Weaver, A. Childers and H. S. Woods.—p. 199.
Evaluation of Black Test as Screen Test for Malignancy. S. B. Nadler and S. Gordon.—p. 204.
Antianemic Properties of Reaction Product of Vitamin B_{12} and Intrinsic Factor. T. D. Spies, G. Garcia Lopez, F. Milanes and others.—p. 206.
Role of Pathology in Lesions of Breast. A. P. Stout.—p. 208.
Phospholipid Synthesis in Patients with Cirrhosis and Infectious Hepatitis: Effects of Choline and Methionine as Measured by Radioactive Phosphorus. W. E. Cornatzer and D. Cayer.—p. 212.
Correlation of Results of Liver Function Tests and Liver Biopsy in Hepatic Disease. W. D. Davis Jr. and H. Laurens Jr.—p. 217.
Roentgen Diagnosis of Abnormalities of Esophagus with Special Attention to Some of Less Common Lesions. J. B. Douglas, G. M. Peterson and J. C. Bell.—p. 223.
Cerebral Vascular Accidents: Treatment by Stellate Ganglion Blocks. P. W. Searles and W. K. Nowill.—p. 229.
Ischemic Infarction of Prostate Gland. H. H. Baird, H. W. McKay and P. Kimmelstiel.—p. 234.
Acute Sinusitis with Orbital Cellulitis. W. R. McKenzie.—p. 240.
Use of Antihistaminic Drugs in Ophthalmology. F. W. Stocker.—p. 242.
Tumors of Small Intestine. M. O. Rouse and W. S. Reynolds.—p. 247.
Why Medical Economics? R. B. Robins.—p. 256.
Localization of Mental Functions: New Conception. L. B. Alford.—p. 262.

Effectiveness of Mass Blood Testing Program.—According to Smith and Gill, 1,430,746 persons among 1,468,192 reporting for blood examination for syphilis were between the ages of 14 and 50, i. e., in the age groups required by the Alabama law. This represents 79.82 per cent of the estimated population between the ages of 14 and 50. There were 1,450,513 persons tested for syphilis and 94,636 (6.5 per cent) were given a diagnosis of syphilis or having had syphilis. White male subjects had the lowest rate of 1.17 per cent and white female subjects were next with 1.32 per cent. Negro male subjects had a rate of 15.14 per cent and Negro female subjects 18.78 per cent. The comparison of the total white rate of 1.25 per cent to the total Negro rate of 17.14 per cent indicates a Negro rate 14 times that of the white rate. An original survey and a resurvey were carried out in nine counties in Albama. In the first survey 112,094 persons were tested, with 6,111 persons found infected. In the resurvey 106,093 persons were tested and 2,954 infections were observed. One hundred and fifty-four cases of primary and secondary syphilis were observed in the 112,094 persons tested in the first survey, a rate of 1.4 per thousand. The resurvey revealed 242 cases of primary and secondary syphilis in the 106,093 persons tested, a rate of 2.3 per thousand. This increase of primary and secondary syphilis in the second survey should not be interpreted as direct evidence of an increased attack rate. In the first survey, 6,111 infected persons were observed out of 112,094 tested, a rate of 54.5 per thousand. In the second survey, 2,954 infected persons were observed out of 106,093 tested, a rate of 27.8 per thousand. This offers strong evidence of a 50 per cent reduction in the prevalence of syphilis due to the discovery and successful treat-

ment of infections at the time of the first survey. There was also shown an 80 per cent reduction in late syphilis. Deaths resulting from syphilis were compared for the periods 1940-1943 before the first survey testing and 1947-1948 after survey testing. A 63 per cent per annum decrease in the persons between the ages of 14 and 50 is reported, while in those over 50 years of age only a 30 per cent decrease is shown.

Southwestern Medicine, El Paso, Texas

31:33-64 (Feb.) 1950

Federal Aid to Medical Education. R. B. Homan Jr.—p. 44.
Psychological Management of Tuberculous Patient. R. E. Mitchell. —p. 45.
The Patient Returns Home. M. Rosenblatt.—p. 50.

31:65-96 (March) 1950

Present Status of Antibiotics: Discussion for General Practitioner. W. A. H. Rettberg.—p. 77.

Surgery, St. Louis

27:161-320 (Feb.) 1950

*Postphlebitic Syndrome: Treatment by Conservative Measures, Sympathectomy and Other Operative Measures. A. Ochsner, M. DeBakey, P. T. DeCamp and others.—p. 161.
Use of Ultrasonic Pulses for Measurement of Biologic Tissues and Detection of Tissue Density Changes.—J. J. Wild.—p. 183.
Physiologic Mechanisms of Intra-Arterial Transfusion. P. G. Jones, M. Australia, J. H. Davis Jr. and others.—p. 189.
Acute Temporary Changes in Renal Function Associated with Major Surgical Procedures. C. A. Moyer.—p. 198.
Significance of Hypoprothrombinemia in Nonjaundiced Surgical Patient: Clinical and Experimental Study. O. S. Cook, M. J. Pearl and F. I. Harris.—p. 208.
Involvement of Penis by Carcinoma of Rectum. H. T. Thompson. —p. 216.
Production of Chronic Enteritis and Other Systemic Lesions by Ingestion of Finely Divided Foreign Materials. S. Chess, D. Chess, G. Olander and others.—p. 221.
Pulmonary Decortication for Fibrinofibrothorax and Empyema in Children. K. P. Klassen.—p. 235.
Further Development of Gastric Balloon to Facilitate Intestinal Intubation. J. J. Wild.—p. 245.
Clinical Observations on Use of Hemolytic and Nonhemolytic Irrigating Medium for Transurethral Prostatic Resection. M. A. Robbins, W. H. Olson and Rolnick.—p. 254.
Intraventricular Extension of Aneurysm of Anterior Cerebral Artery: Report of Case with Successful Removal. D. H. Echols and H. D. Kirgis.—p. 260.
Intramedullary Fixation of Fractures of Humerus Longitudinal Pin. L. V. Rush and H. L. Rush.—p. 268.
Prone Position Frame. D. C. Moore and L. H. Edmunds.—p. 276.
Polyethylene Rod Vein Stripper. J. W. Cole and W. D. Holden. —p. 280.

Postphlebitic Syndrome.—Ochsner and his associates state that a postphlebitic syndrome, a disabling complication, develops in many patients with venous thrombosis. Postphlebitic sequelae consist of persistent edema, pain, varicosities, ulceration and recurrent streptococcic infections. During the six year period ending October 1948 the authors treated 600 patients with the postphlebitic syndrome; 246 of these were adequately followed six months or longer. The cause of the original thrombophlebitis varied considerably: 76 cases occurred postoperatively, 40 post partum, 39 after a severe infection such as typhoid or pneumonia and 30 spontaneously; 29 were of unknown etiology; 23 were post-traumatic, and 9 began as a thrombophlebitic process in varicose veins. Persistent postphlebitic edema is caused by (1) persistent vasospasm, (2) increased venous pressure due to incompetence of the valves of the deep veins, or (3) extensive perivenous cicatrix. Relief of the edema following vasodilatation suggests that vasospasm is the etiologic factor. If no relief is obtained by vasodilatation, phlebographic studies are indicated to determine the presence or absence of incompetence of the valves of the deep veins and perivenous cicatricial contraction. In the present series 57 per cent of patients were treated by conservative measures, 43 per cent had sympathectomies and 21.5 per cent submitted to other radical surgical measures. Of the 246 patients, 16.7 per cent became asymptomatic, 34.5 per cent were improved, 42.3 per cent had slight or no change and 6.5 per cent became worse in spite of therapy. The more chronic cases responded as well as those of shorter duration. Although sympathectomy is of value in the treatment of postphlebitic edema due to persistent vasospasm, more radical procedures are necessary in many other postphlebitic sequelae. Incompetent valves of the deep veins are an indication for deep venous ligation and frequently for subfascial ligation of the communicating veins. The latter is particularly indicated in the presence of ulceration. Recurrent erysipeloid infection can be prevented by controlling the edema and preventing entrance of streptococci, particularly through the feet by the presence of epidermophytosis.

Tennessee State Medical Assn. Journal, Nashville

43:1-34 (Jan.) 1950

Doctors of Medicine Registered in Tennessee: A. Distribution of Physicians. R. H. Hutcheson and C. B. Tucker.—p. 1.
Treatment of Congestive Heart Failure. T. J. Dry.—p. 10.

Texas State Journal of Medicine, Fort Worth

46:65-134 (Feb.) 1950

Recognition of Cardiovascular Emergencies. A. Y. Eagles.—p. 71.
Modern Management of Congestive Heart Failure with Especial Reference to Edema. G. R. Herrmann, J. W. Chriss, M. R. Hejtmancik and P. M. Sims.—p. 75.
Veratrum Viride (Bioassayed) in Treatment of Essential Hypertension. A. Ruskin and J. A. Rider.—p. 80.
Recent Advances in Communicable Disease Control. C. W. Anderson. —p. 84.
Mumps: Recent Advances in Diagnosis and Control. E. Strauss. —p. 88.
Chronic Respiratory Diseases in Infants and Children: Value of Roentgen-Ray Therapy. W. P. Killingsworth and F. Y. Kuhlman.—p. 92.
Roentgen Ray in Diagnosis of Otolaryngologic Problems. C. I. Johnson. —p. 97.
Diagnosis of Deafness. F. R. Guilford.—p. 103.
Sinusitis in Children. D. F. Barkley.—p. 107.
Surgical Treatment of Lacrimal Drainage System. E. R. Veirs.—p. 111.
Surgery of Eye in Children. R. K. Daniel.—p. 113.

U. S. Armed Forces M. J., Washington, D. C.

1:137-256 (Feb.) 1950

*Streptomycin in Pulmonary Tuberculosis: Treatment of Recent Posthemoptoic Spreads. N. C. Furtos.—p. 137.
"Painful Feet" in American Prisoners of War. R. B. Lewis.—p. 146.
Administration of Procaine Intravenously: IV. in General Surgery and Obstetrics. J. F. Brown.—p. 158.
Recent Advances in Plastic Surgery. G. S. Lettermand and W. C. Meloy.—p. 165.
Temporary Lower Extremity Cineplasty. R. C. Rounds.—p. 173.
Experiences with Marrow Nail Operation According to Principles of Kuentscher: Tibia Fractures: Part VI. C. Haebler.—p. 175.
Psychologic Approach to Hard of Hearing Patients. C. B. Cornell. —p. 203.
Amicrobic Pyuria. S. Johnson and H. E. Wolfe Jr.—p. 205.
Exfoliative Dermatitis Following Administration of Penicillin. E. Langdon.—p. 210.
Acute Porphyria: Report of Case with Post-Mortem Findings. R. H. Fuller.—p. 214.
Epidural Abscess Secondary to Brucellosis ("Brucella Suis"). J. W. Sumner Jr.—p. 218.
Herpes Zoster with Concurrent Encephalitis: Report of Case. A. T. Henderson, D. C. Young and G. B. Kempton.—p. 222.
Systemic Effects of Oral Foci of Infection. M. L. Segal and J. J. C. Thomson.—p. 225.

Streptomycin in Posthemoptysic Spreads of Tuberculosis.—During studies of the effects of streptomycin on various types of pulmonary lesions Furtos selected 7 patients for treatment because of recent posthemoptysic spreads. Hemoptysis is commonly followed by a bronchogenic dissemination of blood containing tubercle bacilli into a new portion of lung, resulting in a local pneumonitis which is made up of two components: a hemoptysic component due to the blood per se and an exudative tuberculous component. High temperature and toxicity occurring within a day or so of the hemoptysis are indicative of the hemoptysic component. Increase in the new area of infiltration indicates a progression of the tuberculous seeding. Although bleeding had stopped in the 7 patients under consideration, the posthemoptysic lesions was progressive. The patient who received daily doses of 2 Gm. showed slow improvement, probably because of the toxicity of this large dose. The 120 day regimen is apparently too long a period of treatment. A 42 day regimen with a daily dose of 1 Gm. in a single injection is recommended, because bacterial resistance generally does not develop during this period. In case of relapse, retreatment is more likely to be effective. Four of the 7 patients showed dramatic improvement, 1 moderate improvement and 2 no improvement.

UNIVERSITY OF MICHIGAN LIBRARIES

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted.
Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

62:53-104 (Feb.) 1950

Allergy: Dermatologist's Reminiscences and Speculations. M. B. Sulzberger.—p. 53.
Crusted Scabies. C. D. Calnan.—p. 71.
Angio-Lupoid of Brocq and Pautrier: Report of 2 Cases. G. Auckland. —p. 78.
Method of Permanent Removal of Freckles. L. Winter.—p. 83.

British Journal of Experimental Pathology, London

30:365-508 (Oct.) 1949. **Partial Index**

Nature of Antistreptolysin S in Sera of Man and Other Species: Lipoprotein Properties of Antistreptolysin S. J. H. Humphrey.—p. 365.
*Experimental Beryllium Poisoning. W. N. Aldridge, J. M. Barnes and F. A. Denz.—p. 375.
Effects of Anterior Pituitary Extract on Liver Metabolism. A. H. Ennor.—p. 389.
Serological Protection Against "Fatty Liver"-Producing Effect of Anterior Pituitary Extracts. A. H. Ennor and E. Singer.—p. 395.
Isolation of Antibiotics Produced by Proactinomyces (Nocardia) Gardneri. R. Q. Marston.—p. 398.
Genetic Character of O-D Change in Influenza A. F. M. Burnet, J. D. Stone, A. Isaacs and M. Edney.—p. 419.
Ayfivin: Antibiotic from B. Licheniformis: Production in Potato-Dextrose Medium. A. Arriagada, M. C. Savage, E. P. Abraham and others.—p. 425.
Id.: Extraction, Purification and Chemical Properties. V. E. Sharp, A. Arriagada, G. G. F. Newton and E. P. Abraham.—p. 444.
*Biological Observations on Ayfivin. A. Arriagada, H. W. Florey, M. A. Jennings and I. G. Wallmark.—p. 458.
Preparation and Properties of Enzymes from Cl. Welchii (Type B) Filtrates Which Destroy Blood-Group Substances. M. V. Stack and W. T. J. Morgan.—p. 470.

Experimental Beryllium Poisoning.—According to Aldridge and his co-workers microdetermination of beryllium in biologic materials is a long and difficult method, requiring care and experience before reproducible results can be obtained. For some of the work a roughly quantitative spectrographic method was employed. Valuable information was obtained from a histochemical method for staining beryllium in fixed tissues. Experiments with various beryllium compounds were made on rabbits, rats and mice. It was found that beryllium ions react rapidly with certain tissue proteins. The complex so formed is of sufficient stability to protect beryllium from precipitation by phosphate ions. Such precipitation is the fate of beryllium ions reaching the alimentary canal, with the result that beryllium leaves the body without harming it except in so far as it may deprive it of phosphates. In the subcutaneous tissues beryllium attaches itself to the protein of the permanent tissue elements. Beryllium may remain in situ for many weeks after a single injection. Chronic inflammatory lesions develop around the beryllium. When the element is injected into tissues or inhaled it tends to remain localized. The animal may die from acute beryllium poisoning after one dose if enough of the chemical escapes from the site of injection to overwhelm the liver. In other cases the animal may die from the acute inflammatory effects produced by the beryllium. When beryllium ions are injected into the circulation, they attach themselves to plasma protein. The beryllium-protein complex is then removed from circulation by the liver, and by doing this the liver sows the seeds of its own destruction, for before it can excrete the beryllium the latter has started to destroy the hepatic cells. Beryllium ions are poisonous to all living cells. Their affinity for tissue protein and their insolubility in the presence of phosphate means that their toxicity is determined to a large extent by the route of their administration.

Biologic Observations on Ayfivin.—This report is one of a series of papers by Arriagada and others on ayfivin, an impure polypeptide mixture obtained from a strain of Bacillus licheniformis. It has been shown to have powerful antibacterial properties and a low toxicity to mice. It has been shown to possess protective action against experimental infections in mice with Streptococcus pyogenes and Staphylococcus aureus. However, in doses not much greater than those required for therapeutic effect severe damage can be caused to the kidneys. Ayfivin appears to be closely related to bacitracin.

British Journal of Ophthalmology, London

34:65-128 (Feb.) 1950

Deafness and Laurence-Moon-Biedl Syndrome. R. A. Burn.—p. 65.
Visual Acuity with Brief Stimuli. L. C. Martin, D. J. Day and W. Kaniowski.—p. 89.
Convergent Strabismus, Macular Foci and Toxoplasmosis in Monozygotic Twins. K. O. Granström and J. H. Magnusson.—p. 105.
Stenosis of Lower Canaliculus. O. G. Morgan.—p. 113.
Therapeutic Contact-Lenses from Plastic. I. de Györffy.—p. 115.
Self-Inflicted Conjunctivitis. M. J. Roper-Hall.—p. 119.

British Journal of Radiology, London

23:1-72 (Jan.) 1950

Microradiography of Bone. H. A. Sissons.—p. 2.
Techniques of Post-Mortem Angiography of Stomach. A. L. Woolf. —p. 8.
Anomalous Ossification of Ribs as Cause of Pseudarthrosis. J. Aspin. —p. 15.
Reciprocal Vicinity Effect of Irradiated Tissues on "Diffusible Substance" in Irradiated Tissues. B. Jolles.—p. 18.
Clinical Radiation Dosage: III. Biological Factor in Radon and Isotope Dosage. L. Cohen.—p. 25.
Medical Aspects of Protection from Ionizing Radiations. F. Ellis. —p. 28.
*Radiation Hazards of Radiotherapeutic Staff. J. R. Nuttall.—p. 35.
Cytological Aspects of Protection from Ionizing Radiations. A. Glücksmann.—p. 41.
Absolute Measurements of Activity of Beta Emitters. J. L. Putman. p. 46.

Radiation Hazards of Radiotherapeutic Staff.—Nuttall shows that danger to medical and technical personnel in the radiotherapy department arises almost entirely from the use of radium or radon in containers, either applied to the patient in molds or inserted interstitially or intracavitarily. Much greater quantities of radium are employed in beam therapy, but this radium can be heavily screened. The therapist need not enter a treatment room during high voltage roentgen therapy, hence this treatment carries slight occupational hazard. Superficial roentgen therapy is usually given under similarly protected conditions, though the need for someone to hold children receiving treatment for hemangioma or ringworm involves some danger, probably best overcome by letting the children's relatives hold them. The development of cancer in badly damaged areas of skin, and occasionally at a distance from these areas, indicates that it would be wise to limit skin exposure to the lowest possible level. Hemopoietic changes remain the major danger to workers. The observed higher incidence of leukemia in radiologists may be an indication that protracted exposure to radiation insufficient to cause serious immediate damage may induce malignant change later. Knowledge of genetic effects in man is necessarily imperfect, but reduction of the dose to the gonads to the lowest possible level should be one of the major objects of protection.

Indian Journal of Medical Research, Calcutta

37:249-372 (July) 1949. **Partial Index**

Treatment of Typhoid Fever with Bacteriophage: Preliminary Report. R. G. Dhayagude and D. D. Banker.—p. 249.
*Purification of Vaccine Lymph by Penicillin. R. S. Rao.—p. 267.
*Amelioration of Symptoms of Fluorosis by Aluminium Salts. K. Venkataramanan and N. Krishnaswamy.—p. 277.
Studies of Anaerobic Wound Infection. R. G. Dhayagude and N. M. Purandare.—p. 283.
Mutual Influence of Nicotonic Acid and Riboflavin in Metabolism. H. N. De and S. N. Banerjee.—p. 293.
Nutritional Megaloblastic Anaemia: So-Called Pernicious Anaemia of Pregnancy: Preliminary Report. B. V. Kothari and Y. M. Bhende.—p. 347.

Purification of Vaccine Lymph by Penicillin.—Rao describes experiments on the basis of which he arrives at the following conclusions regarding the use of penicillin in the purification of vaccine lymph: 1. Penicillin in the concentrations

tested exerts no deleterious effect on the potency of the virus. Even under adverse conditions of storage there is no deterioration beyond that which is to be expected without penicillin. 2. Penicillin even in as high a concentration as 5,000 units per cubic centimeter does not purify glycerinated calf lymph. It appears that the favorable reports on penicillin as a purifying agent for glycerinated calf lymph may be based only on results obtained soon after treatment with penicillin, no penicillinase being used in the tests and the initial tests not being followed up after much longer intervals. These experiments were conducted with glycerinated calf lymph, hence the conclusion pertaining to the unsuitability of penicillin for purification has reference only to glycerinated calf lymph. Whatever the diluent used for calf lymph, it is desirable that in experiments of this nature penicillinase be employed in the purity tests so that a proper appraisal of the utility of penicillin can be made.

Amelioration of Fluorosis by Aluminium Salts.—According to Venkataramanan and Krishnaswamy the continued ingestion of water containing comparatively large amounts of fluoride causes not only "mottling of the dental enamel" but also disturbances in the skeletal system similar to those described by Roholm among workers in cryolite factories. Research workers have been endeavoring to devise suitable methods of removing fluorides from drinking water and to seek out antidotes for this poison. They cite reports which indicate that a low calcium diet causes greater susceptibility to fluorosis and that deficiency in ascorbic acid promotes greater absorption of fluorine. Other observers had demonstrated that aluminium salts prevent mottling of teeth and formation of skeletal exostoses resulting from excess intake of fluorides. The authors describe studies on rats which were fed fluorine either alone or with aluminium salts. These studies confirmed the ameliorating effect of aluminium salts in fluorosis and showed that the skeletal storage of fluorine is appreciably reduced by the presence of aluminium in the diet.

Journal of Laryngology and Otology, London

64:1-52 (Jan.) 1950. **Partial Index**

Tonsillar Function—Review of Evidence. A. J. Wright.—p. 1.
Otogenous Thrombophlebitis of Lateral Sinus and Jugular Bulb. A. B. Smith.—p. 12.
Bilateral Rhinolith of Endogenous Origin. A. S. Walker.—p. 21.

64:53-102 (Feb.) 1950. **Partial Index**

Branchial Fistula Terminating in Tubulo-Dermoid Cyst Lying Posterior to Tonsil. N. W. Gill.—p. 62.
Blast Hyperaemia of Tympanic Membrane. F. B. Korkis.—p. 70.
Bacillus Proteus Mastoiditis with Recovery: 3 Case Reports. L. R. S. Taylor.—p. 82.

Lancet, London

1:239-286 (Feb. 11) 1950

*Para-Aminosalicylic Acid in Tuberculosis: Clinical and Pharmacological Aspects. D. G. Madigan, L. L. Griffiths, M. J. G. Lynch and others. —p. 239.
Perforation and Haematemesis. L. A. Ives.—p. 246.
Observations on Antigen-Antibody Reactions. F. Stratton.—p. 247.
Arthritis Mutilans Associated with Psoriasis. O. Clarke.—p. 249.
Hexamethonium Bromide. A. R. Hunter.—p. 251.
Pentamethonium Iodide in Anaesthesia. M. H. Armstrong Davison. —p. 252.
Decamethonium Iodide as Muscle Relaxant in Abdominal Surgery. A. J. Gray.—p. 253.
Dimercaprol (BAL) in Acute Antimony Dermatitis. D. A. W. Rittey. —p. 255.
Hereditary Haemorrhagic Telangiectasia. T. Cochrane and G. Leslie. —p. 255.
Mumps Meningitis and Orchitis Without Parotitis. R. S. Dewar. —p. 256.

Paraaminosalicylic Acid in Tuberculosis.—Madigan and his associates suggest that, as experience with paraaminosalicylic acid accumulates, it may be possible to discriminate between its direct bacteriostatic effect on the parasite and its various pharmacologic effects on the host. The authors review observations from animal experiments and on 64 patients who were treated with paraaminosalicylic acid. Two pharmacologic mechanisms are involved, as distinct from antibacterial. The first is thought to be associated with a direct action on the products of metabolism of the causal organism or on the biochemical lesions it produces. It has not been identified. The second mechanism is an antipyretic action due to peripheral vasodilatation. Changes in blood cell counts, hemoglobin and erythrocyte sedimentation rate estimates are secondary to the antipyretic effect. In contrast, improvements in the pulse rate are not seen at this stage and are thought to indicate more accurately the course of the tuberculosis. All of 22 strains of tubercle bacilli isolated before paraaminosalicylic acid therapy were inhibited by 0.006 to 0.025 mg. per hundred cubic centimeters of tween®-albumin medium. After four months' treatment 3 of 5 strains showed an increase in resistance of 50 to 100 times, 2 strains growing in concentrations of 1.6 mg. per hundred cubic centimeters. In contrast, cultures isolated from 7 patients treated for the same period with sulphetrone (4:4'-bis[gamma-phenyl-N-propyl-aminodiphenylsulfone-tetrasodium]) and paraaminosalicylic acid were still sensitive to 0.005 to 0.05 mg. of paraaminosalicylic acid per hundred cubic centimeters. After daily doses of 30 Gm. of paraaminosalicylic acid a prolongation of blood-clotting time occurs within a few days; this is not cumulative and is maintained throughout the course. The oral administration of 10 mg. of synthetic vitamin K daily prevents it. Serious toxic effects have not been encountered, but nausea, vomiting and diarrhea were observed in 22 of 64 patients given the sodium salt of paraaminosalicylic acid. Two cases of drug fever and one of generalized desquamating skin rash responded to desensitization. Thirty-six of the 64 patients were somewhat improved. Although the final clinical assessment is not being attempted, the authors believe that the early improvement in all cases is not sustained partly because of the direct pharmacologic action of paraaminosalicylic acid, which might in some cases be confused with a specific chemotherapeutic response. The development of resistant strains at about the fourth month of therapy may also be a factor. The chemotherapy of tuberculosis seems to be evolving along the line of a combination of drugs—streptomycin, sulphetrone and paraaminosalicylic acid—to suppress the development of any single generation of drug-resistant organisms.

Medical Journal of Australia, Sydney

1:29-64 (Jan. 14) 1950

Surgery of Trauma. A. R. Murray.—p. 29.
*Portal Hypertension and Its Treatment. H. Wilson.—p. 33.
Coeliac Disease and Coeliac Syndrome. G. E. M. Scott.—p. 37.

Treatment of Portal Hypertension.—Wilson discusses the diagnosis of portal hypertension and the principles of shunt operations. The whole of the portal stream may be diverted by anastomosing the portal vein to the vena cava. Obviously this will relieve the portal hypertension. It remains to be shown by observation over a number of years that this complete diversion of the portal flow is not a bad thing. By anastomosis of the splenic vein to the left renal vein approximately 40 per cent of the portal stream is diverted. The author describes the technic of the splenorenal anastomosis and cites a patient in whom he thought this operation was advisable and in whom it was performed. The patient was greatly improved. A portocaval anastomosis is hazardous because of the great number of vessels in the region of the porta hepatis. A false move will result in profuse hemorrhage. Attempts to control this hemorrhage may easily lead to irreparable damage to the vital structures in the region. The operation of splenorenal anastomosis is also technically difficult, but it is neither so difficult nor so hazardous as portocaval anastomosis. If extreme difficulties are encountered, the patient can be saved by splenectomy and nephrectomy. If comparable difficulties are encountered in a portocaval anastomosis, the damage has usually been irreparable and the patient will die. The relative safety of splenorenal anastomosis compared with that of portocaval anastomosis, taken in conjunction with the 40 per cent diversion of flow by the anastomosis and the 40 per cent diminution in flow by the splenectomy, renders this the most favorable operation. The only time a portocaval anastomosis is indicated is when there is some anatomic contraindication to a splenorenal anastomosis.

Practitioner, London

164:97-192 (Feb.) 1950. **Partial Index**

Etiological Problem of Acute Poliomyelitis. D. McAlpine.—p. 101.
Disseminated Sclerosis. J. Le Fleming Burrow.—p. 109.
Muscular Dystrophies (Myopathies). M. Critchley.—p. 118.
Fits and Their Differential Diagnosis. W. R. Russell.—p. 122.
Sciatica: Etiology and Treatment. D. Kendall.—p. 128.
Disorders of Sleep. D. Williams.—p. 135.
Vitamin Deficiency and Nervous System. J. D. Spillane.—p. 143.
Ulceration of Mouth in Children. J. L. Henderson.—p. 149.

UNIVERSITY OF MICHIGAN LIBRARIES

Acta Radiologica, Stockholm

32:249-358 (Oct. 31) 1949. **Partial Index**

*Dental Prostheses and Intraoral Epidermoid Carcinoma. A. Hobaek.—p. 259.
Design for Electrokymography and Some Fundamental Considerations on Electrokymogram. T. Andersson.—p. 276.
Rotation Treatment of Cancer of Esophagus: Clinical Material. C. Krebs, H. Nielsen and P. E. Andersen.—p. 304.

Dental Prostheses and Intraoral Carcinoma.—Hobaek says that from 1932 to 1945 a total of 560 cases of intraoral epidermoid carcinomas were treated at the Norwegian Radium Hospital. Analysis revealed a causal connection between irritation caused by dental prostheses and the development of the carcinoma in 86 of these cases. Twelve patients had the Plummer-Vinson syndrome, which is characterized by dysphagia with glossitis, hypochromic anemia, splenomegaly and atrophy in mouth, pharynx and esophagus; it is known also as sideropenic dysphagia. The author briefly discusses the factors involved in the development of epidermoid carcinomas in the oral cavity and points out the importance of the atrophy of the mucous membrane of the mouth in sideropenic anemia with Plummer-Vinson's syndrome and the senile atrophy of the mucous membrane; he also emphasizes these conditions as important factors in the development of carcinomas caused by the chafing of prostheses. The majority of these carcinomas develop without a demonstrable precancerous initial stage, but a number of leukoplakias have been observed; in some cases stomatitis prosthetica in the palate must be considered a precancerous condition.

Acta Tuberculosea Scandinavica, Copenhagen

23:261-400 (No. 3-4) 1949. **Partial Index**

Phosphatase Investigations in Cases of Tuberculosis. F. Døhl.—p. 261.
Streptolysin and Tuberculosis. F. Døhl.—p. 284.
Problem of Relation Between Tuberculosis and Body Build; Tuberculin Reaction and Physical Constitution. I. Fauszt.—p. 287.
Erythema Nodosum in Dispensary Clientèle. H. Hallander.—p. 294.
Severe Hemorrhage During Thoracoscopy with Cautery Checked by Surgical Intervention. E. Wang and H. F. Harbitz.—p. 310.
*Attempt to Distinguish Between Vaccination-Allergy and Superinfection-Allergy in BCG Material of Oslo Public Health Service. G. Hertzberg.—p. 315.
*Factors Influencing the Effectiveness of BCG Vaccination. G. Hertzberg.—p. 338.

Vaccination-Allergy and Superinfection-Allergy in BCG-Vaccinated Persons.—According to Hertzberg, 18,500 persons were vaccinated with BCG in the tuberculosis department of the Oslo public health service during the period 1932 to 1946. Of these vaccinated persons 13,101 were kept under exact control by observing the following rules: All persons vaccinated with BCG were tuberculin negative to a Mantoux test with 1 mg. of old tuberculin before they were vaccinated and the lungs of all were examined by roentgen rays. All were reexamined two months after the vaccination. The local reaction to BCG was then measured, the lungs were again examined by roentgen rays and the diameter of the infiltration indicative of the reaction to tuberculin was measured after two days using the Pirquet method and after three days with the Mantoux technic. Reexaminations thereafter were performed once a year. Throughout the entire observation period about 85 per cent of the BCG-vaccinated persons presented consistently weak positive reactions, which remained of the same size or, more frequently, decreased from year to year. The tuberculin positivity in such cases is to be considered as due exclusively to the BCG. Vaccination allergy is the term suggested for this type of tuberculin reaction. The remaining 14 to 15 per cent of the vaccinated persons presented a tuberculin reaction, for which the term superinfection allergy has been coined. These persons had the same initial reaction to tuberculin as those with vaccination allergy. An increase in the size of the reaction to tuberculin then was observed at one of the annual reexaminations, and the increase in the size of the reaction persisted for the remainder of the observation period. The first increase observed in the diameter of a tuberculin reaction is indicative of superinfection, provided that this increase is thenceforth maintained. The employment of the most uniform technic in performing and recording tuberculin tests, a definite system of registration and frequent reexamination of the vaccinated persons support the author's assertion that the differentiation made between vaccination allergy and superinfection allergy was not vitiated by essential or serious errors.

Effectiveness of BCG Vaccination.—Hertzberg considers the frequency of turning from tuberculin negative to tuberculin positive, the duration of the vaccination allergy and the resistance to tuberculous disease after superinfection as important criteria for evaluating the effects of BCG vaccination. Observations on 13,101 BCG-vaccinated persons who were subjected to a definite system of registration and reexamination during a period of fourteen years revealed that the following factors influenced the effectiveness of BCG vaccination: The greater the local reaction to BCG vaccination, the higher the incidence of conversion from tuberculin negative to tuberculin positive. Local reactions with a diameter of about 10 mm. were required in order to secure a higher incidence of conversion. The duration of vaccination allergy was varied with the size of the local reaction on examination two months after vaccination. Eighty-three per cent of the vaccinated persons whose local reaction to BCG vaccination had a diameter of more than 5 mm. retained their vaccination allergy for nine years of observation. All persons who again become tuberculin-negative should at once be revaccinated with BCG. Comparison of 1,901 persons with superinfection allergy and of 1,832 persons who were not vaccinated with BCG, but whose reaction to the tuberculin test had changed from negative to positive, showed that the tuberculosis morbidity among the superinfected vaccinated persons was 1.7 per cent, while it was 39.8 per cent among the nonvaccinated whose reaction became positive. Tuberculous meningitis and miliary tuberculosis occurred among the controls but not among the vaccinated persons. There was not a single death from tuberculosis among the vaccinated persons. The greater the size of the local reaction to BCG vaccine, the greater was the resistance to tuberculous disease after the occurrence of superinfection. The degree of tuberculin sensitivity on examination two months after vaccination and later on in the vaccination-allergy stage had no effect on the resistance to tuberculous disease after the occurrence of superinfection. The immunization produced by BCG vaccination, therefore, seems to depend more on cellular than on humoral influences.

Anales de Medicina y Cirugía, Barcelona

25:373-452 (Nov.) 1949. **Partial Index**

*Conservative Treatment of Trigeminal Neuralgia. J. Solé Sagarra and L. Alonso de Olarte.—p. 391.

Conservative Treatment of Trigeminal Neuralgia.—Solé Sagarra and Alonso de Olarte direct attention to the causal role of irritation of the gingival end branches of the trigeminus on the development of trigeminal neuralgia and onset of the crises. The authors cite a large number of patients of either sex between the ages of 36 and 82 years in whom neuralgia had lasted for five to fifteen years. Vitamin B_1, roentgen therapy, nicotinic acid, bee venom and histamine iontophoresis failed to relieve their symptoms. The point of maximal pain in the majority of the cases was on either the upper or the lower gums. The differential diagnosis with other types of neuralgia was made by the following characteristics of pain: (1) the sensitivity of the whole trigeminal territory is intact; (2) the bouts of pain are intermittent; (3) pain is not associated with pain from other nerves. Successful treatment consisted in infiltration of the gums with a 20 per cent phenol solution in glycerin which was injected at the point of maximal pain at either or both the upper and lower gums. Neuralgia was controlled by the first infiltration in all cases. In 3 of 6 cases neuralgia recurred one or two years after infiltration. The pain was milder than it was before the treatment. It was controlled by a second infiltration, which was given at the same point. In 2 cases permanent cure was obtained from one infiltration without recurrence, two and five years, respectively, after treatment.

Archives Françaises de Pédiatrie, Paris

6:561-672 (No. 6) 1949. **Partial Index**

*Results of Eighteen Months of Streptomycin Therapy of Tuberculous Meningitis in Children. J. Chaptal, D. Brunel, Pietri and others. —p. 561.
Early Roentgenologic Diagnosis of Rickets; Results of Survey in Region of Marseille. P. Giraud, P. Vincent and J. Coignet.—p. 574.
Comparative Study of Nitrogen Requirements and of Growth of Normal Infants Fed with Maternal Milk, Cow's Milk and Enzymatic Proteolysates of Liver. A. Rossier, A. Beauvillain and H. Gascuel. —p. 582.

Streptomycin in Tuberculous Meningitis.—Chaptal and co-workers gave streptomycin to 50 children with tuberculous meningitis during the period January 1948 to June 1949. Of 26 children who died during the treatment, only 24 were considered therapeutic failures, since 2 died within thirty-six hours after admission to the hospital. At present 19 (44 per cent) are considered as cured. One to 2 Gm. of the drug, depending on the age of the child, was administered daily by the intramuscular route until clinical and biologic recovery was maintained for two months after the cerebrospinal fluid had been restored to normal. Poor results were obtained with the administration of streptomycin by the intramuscular route alone. Additional administration of the drug by the intraspinal route is indispensable. Ten to twenty day courses with 0.01 to 0.05 Gm., depending on the age of the child, in two divided doses daily are recommended and may be repeated if the albumin content of the cerebrospinal fluid increases or shows a tendency to stabilization at a pathologic level. Spinal puncture should be performed daily during the treatment by the intraspinal route, and later every eight or fifteen days or at least once a month. Eleven of the 26 patients who died were less than 2 years of age, 8 were between 2 and 6 years and 7 were between 6 and 15 years. Treatment was begun after the tenth day of the disease in 18 of the 24 therapeutic failures. Twelve of these patients were in coma on admission, 5 had bulbar disturbances and 15 presented a paralytic syndrome. Intracranial hypertension resulting from acute hydrocephalus occurred during the initial stages of treatment as well as between the fifth and eighth month and was associated frequently with cerebrospinal block. Intracranial hypertension was the cause of death in 16 cases. Neurosurgical treatment should therefore be frequently combined with medical treatment. Three of the 19 patients who recovered were less than 2 years of age when treatment was instituted, 4 were between 2 and 5 years, 4 were 6 years of age, 4 between the ages of 7 and 10 and 4 between the ages of 10 and 15. Treatment was instituted before or at the tenth day in 11 of the 19 patients who recovered. Duration of the treatment of these patients varied from ten and one half to twenty-three months, and one to twelve months have passed since treatment was discontinued. Deafness resulted in 4 patients.

Nordisk Medicin, Stockholm

43:55-106 (Jan. 13) 1950. **Partial Index**

Granulosa Cell Tumors. O. Riisfeldt.—p. 55.
Tumor Cells in Gastric Secretion. J. M. Marcussen and L. Myrting. —p. 56.
Tendovaginitis Crepitans, Quervain's Tendovaginitis Stenosans and Snapping Finger from Viewpoint of Industrial Compensation. A. Troell.—p. 59.
*Sequels of Spinal Anesthesia. G. Everberg.—p. 64.
Alkaline Phosphatase in Cells of Normal and Pathologic Bone Marrow Compared with Peripheral Blood Cells. C. M. Plum.—p. 69.
Carcinoma Metastases in Tibia and Fibula. G.-F. Saltzman.—p. 71.
Leukemic Renal Tumor with Uremia. J. R. Myhre.—p. 75.

Sequels of Spinal Anesthesia.—Replies to questionnaires sent to 771 patients after spinal anesthesia disclosed that 174 (22.2 per cent) had various disturbances attributed to the anesthesia. Of the 93 patients with persisting complaints 85 were reexamined. The results of the examinations compared with the results of diagnoses made on hospitalization subsequent to the spinal anesthesia or consultations with general practitioners or specialists suggest that in about one third of the cases the complaints were attributable to factors other than the spinal anesthesia. Of 111 control patients given hexobarbital (evipal®) anesthesia 21 (18.9 per cent) ascribed disorders to the anesthesia and in almost half the cases the complaints persisted for over a year, although hexobarbital anesthesia does not cause late neurologic complications. Everberg's investigations seem to show that full agreement as to the extent of protracted and intense discomfort after spinal anesthesia cannot be reached until regular control over a fairly long period is set up, which should be carried out as teamwork between neurologist, psychiatrist, surgeon and practitioner.

Progrès Medical, Paris

77:561-584 (Dec. 24) 1949

*Cortin (Adrenal Extract) in Treatment of Poliomyelitis: Preliminary Report. L. Binet, M. Languille, P. Tanret and P. Vernant.—p. 563.
Contribution to Study of Psychopathology in Multiple Sclerosis. M. Schachter.—p. 567.

Cortin in Treatment of Poliomyelitis.—Binet and co-workers treated 5 patients with poliomyelitis with an extract of the adrenal gland, 1 cc. of which corresponded to 125 Gm. of the fresh gland. The daily dose administered corresponded to 250 Gm. of the fresh gland and was given in two divided doses of 125 Gm. by intramuscular route. The duration of the treatment varied according to the patient. The treatment was practiced systematically in patients who were running febrile on admission. There was a rapid drop in temperature by lysis. Apyrexia or a subfebrile state with temperatures around 100.2 F. resulted within three to five days in all patients. The paralysis did not progress in any of the patients; it seemed improved in 2 patients on the third or fifth day of the treatment. There was a pronounced improvement in the general condition of the patients between the fourth and sixth day after the institution of the treatment. It is too early to draw definite conclusions, but the fact that treatment with cortin proved innocuous even in large doses justifies the preliminary report of this therapeutic trial.

Revista Médica de Chile, Santiago

78:1-64 (Jan.) 1950. **Partial Index**

*Dissecting Aneurysm of Aorta. M. Brodsky, M. Rojas and N. Muñoz.—p. 13.

Dissecting Aneurysm of Aorta.—Brodsky and collaborators report on 14 patients who died from dissecting aneurysm of the aorta. The clinical symptoms were sudden acute precordial pain and collapse. Pain irradiated to the abdominal and thoracic and, rarely, to lumbar regions. Clinical diagnosis of dissecting aneurysm of the aorta was made in 2 of the 14 cases. The differential diagnosis from myocardial infarction was based on (1) the type of pain, (2) the signs of ischemia in the territories supplied by aortic branches and (3) changes in the electrocardiogram. All patients had arterial hypertension, but none had congenital heart disease or a history of effort as cause of the aneurysmal rupture. The span of life after appearance of pain was a few hours or a few days. A transverse tear of the intima was present in 13 cases. The rupture in the majority of the cases was located near the origin of the ascending aorta. In other cases it was located at the arch, the descending thoracic aorta or the abdominal aorta. Dissection in half the cases reached as far as the iliac arteries. Rupture of the adventitia was the cause of death in the majority.

Settimana Medica, Florence

37:181-202 (April 30) 1949. **Partial Index**

*Spleen-Liver Association in Hepatic Complications of Undulant Fever. S. Signorelli.—p. 181.
*Respiratory Tracts of Alabaster Workers of Volterra, Italy. M. S. Manfredi.—p. 193.

Brucellar Chronic Splenomegalic Cirrhosis.—Signorelli directs attention to a brucellar reaction of the liver and spleen mesenchyma as a sequel of brucellosis with consequent chronic splenomegalic cirrhosis. The spleen has a protective effect on the liver in the course of the reaction. Splenectomy is contraindicated. A case is reported.

Respiratory Tracts of Alabaster Workers in Volterra, Italy.—A clinical and roentgen study and tests of the respiratory functions were made by Manfredi on 30 normal workers in alabaster. They were between the ages of 30 and 40 and had worked in alabaster since early youth. The respiratory tract showed a moderate chronic bronchitis with emphysema.

UNIVERSITY OF MICHIGAN LIBRARIES

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Quinidine in Disorders of the Heart. By Harry Gold, M.D., Professor of Clinical Pharmacology at Cornell University Medical College, New York. Cloth. $2. Pp. 115. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 1950.

Since its introduction by Frey in 1918 the use of quinidine has varied. After it was welcomed with great enthusiasm because of its ability to stop arrhythmia perpetuans (auricular fibrillation), it was found that relapse was frequent and that its use was not without an element of danger, so it did not meet the great expectations held for it. Accordingly its use declined, until in some first class clinics it was seldom used. This swing of the pendulum was also extreme, and the use of quinidine is now being revived.

Dr. Gold, who has studied extensively the action of cardiac drugs in the clinic, is well qualified to write this book, which describes the indications, manner of use, action and dangers of quinidine. The text is clear and easy to read, and the instructions are definite and easy to follow. Dr. Gold's ample clinical experience is drawn on to illustrate his points. The use of the drug in the various tachycardias, auricular flutter and fibrillation and in ventricular tachycardia and fibrillation is given in detail. Its employment in angina pectoris, coronary thrombosis and thyrotoxic cardiac disorders is mentioned, without favor for the most part. Dr. Gold prefers not to administer quinidine and digitalis simultaneously, in contradistinction to Frey's original position. He has perhaps a higher estimate of the value of the drug in extrasystoles and paroxysmal auricular tachycardia than have some workers. In general this book is to be welcomed as giving a clear, reasoned and well balanced account of the clinical utility of quinidine. The bibliography of 137 titles makes no attempt at completeness, but it covers the principal papers, especially those written in English, and will be valuable to persons wishing to study the subject further.

Primer of Allergy: A Guidebook for Those Who Must Find Their Way Through the Mazes of This Strange and Tantalizing State. By Warren T. Vaughan, M.S., M.D. Third edition, revised by J. Harvey Black, M.D. Cloth. $3.50. Pp. 175, with illustrations by John P. Tillery. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1950.

This is the third edition of a primer addressed principally to the allergic patient. The purpose of the work is to explain to the allergic patient the nature of his malady and ways in which amelioration of his symptoms may be achieved. It is also designed to enable the patient to cooperate more effectively with his physician and to give the patient explicit information about diets, sources of allergens and ways of avoiding these.

The utility of a book of this character seems questionable; however, assuming that books of this kind serve some useful purpose, this one would seem to accomplish its end fairly effectively. There is only one major criticism. In an elementary book for the lay reader, it does not seem appropriate to include several pages on "Directions to the Doctor for Allergen Administration," which includes the treatment of reactions, or "Directions to the Doctor for Hyposensitization."

Minor criticisms are: On page 20 the author states paraphenylenediamine was formerly used in hair dyes. Paraphenylenediamine or paratolylenediamine, an immunologically related compound, are still commonly employed in hair dyes. On page 91 it is said that even in persons complaining of contact allergy food allergy usually also exists. Experience has not proved this. On page 106 diseases such as pylorospasm, Ménière's disease, erythema multiforme and thromboangiitis obliterans are mentioned. It is doubtful that these names would have any meaning to a lay reader. On page 112 it is stated that orris root is a constituent of many cosmetics. This is no longer so as the author himself points out on page 131. On page 127 the author states that sometimes dermatitides are due to a dietary excess of fats, proteins or carbohydrates. This is a questionable statement.

The Chicago-Cook County Health Survey. Conducted by the United States Public Health Service. Cloth. $15. Pp. 1317, with 32 illustrations. Columbia University Press, 2960 Broadway, New York 27, 1949.

This book is an audit of all the health facilities of the great metropolitan area of Chicago which includes all those suburban and rural areas in Cook County outside Chicago and those maintained by Cook County itself, an area in which 4,500,000 persons live. The idea for a survey grew out of the postwar planning discussions of which so much was heard in the months immediately following the collapse and surrender of Japan. Most of the postwar plans were carried no further than discussions, but the survey plan was the one which reached the action stage. Representatives of agencies interested in the health of Chicago realized that the time had come to reorganize the patchwork mechanisms which served the community with much overlapping and duplication of effort, competition which sometimes invalidated the best of motives, often with inadequacy and inefficiency.

At the suggestion of a group representing the health division of the Council of Social Agencies of Chicago, the Chicago Medical Society and the Institute of Medicine of Chicago, Edward J. Kelly, then mayor of Chicago, and Clayton F. Smith, then president of the Board of Commissioners of Cook County, were asked to invite the Public Health Service to make an unbiased survey. Dr. Thomas Parran, then Surgeon General of the service, agreed and assigned Dr. Knox E. Miller to direct and plan the work and recruit the staff.

A total of $43,305 was contributed by the Chicago Community Trust, the Community Fund of Chicago, Inc., the Cook County Chapter of the National Foundation for Infantile Paralysis, the Field Foundation, Inc., the Illinois Division of the American Cancer Society, the Tuberculosis Institute of Chicago and Cook County and the Commercial Club of Chicago.

Other official and governmental agencies assigned personnel and office equipment to aid in the survey: American Red Cross, Chicago chapter; Chicago Council on Community Nursing; Chicago Maternity Center; the departments of Buildings, Health, Public Works and Welfare of the City of Chicago; Cook County Bureau of Public Welfare; Cook County Department of Public Health; Elizabeth McCormick Memorial Fund; Illinois Department of Public Health; Illinois Division of Vocational Rehabilitation; Illinois Public Aid Commission, and the University of Chicago.

The survey is divided into three parts: part I: Environmental Sanitation; part II: Preventive Medicine, and part III: Facilities and Services for Medical Care.

Part I consists of discussions of the Chicago-Cook County area, Chicago water supply, water supplies in Cook county, the proposed metropolitan water system, sewerage in Chicago, the sanitary district of Chicago, municipal sewer systems in Cook county, present status of water pollution in the Chicago-Cook county area, refuse collection in Chicago, methods of refuse disposal in Chicago, refuse collection and disposal in Cook county, milk and milk products, frozen desserts, eating and drinking establishments, processed foods and bottled beverages, mosquito control, sanitation inspection services, rat infestation and rodent control, swimming pool sanitation, smoke abatement, public health laboratory facilities and housing.

Part II discusses public health in the Chicago-Cook county area, public health statistics, communicable disease control, tuberculosis control in Chicago and Cook county, venereal disease control, mental hygiene agencies under government control, mental hygiene in nongovernmental institutions and agencies, maternal and child health services, school health services, industrial health and hygiene survey, industrial hygiene activities of official and voluntary agencies, public health nursing, nursing in special fields, public health nursing in Cook county, dental needs and facilities, nutrition service, health education, personnel policies and practices, the voluntary health agencies in the

Chicago-Cook county area, organization and administration of official health and finances and appraisals.

Part III discusses medical care by physicians in the Chicago-Cook county area, medical care programs of public welfare agencies in the Chicago-Cook county area, hospitals, outpatient departments and allied independent clinics, public emergency ambulance service, nursing service in hospitals, medical social services, the care of the chronically ill and provision for the diagnosis and treatment of cancer.

This survey of a large metropolitan areas's health and welfare work is interesting. It shows the deficiencies in the government of the Chicago area in meeting the problems for which average standards have been set on the national scale and reveals the outmoded organization of modern government. When newer functions of government are added to already existing governmental agencies, it sometimes is done without regard to most efficient placement. This volume will be welcomed by students of government. It can be compared to the "Hoover Commission Report on the Federal Government." How soon many of these accomplishments can be reached is still a matter for representatives of government to decide. The survey lays down the basic principles of health organization for the Chicago metropolitan area for the next 10 years.

Personality: Development and Assessment. By Charles M. Harsh, Professor of Psychology, University of Nebraska, and H. G. Schrickel, Assistant Professor of Psychology, University of Nebraska, Lincoln. Cloth. $5. Pp. 518. The Ronald Press Company, 15 E. 26th St., New York 10, 1950.

Although intended primarily as a textbook, this volume contains much material of informative and practical value for physicians, especially in view of the increased interest in psychosomatics. Excellent material is presented in a chapter on middle and old age which discusses the importance of understanding psychologic changes as well as the physical and physiologic alterations and loss of abilities that begin in the forties. Included among considerations are family relations, problems of the middle-aged woman, for whom a special college retraining course is mentioned, vocational readjustment and creativity replacements.

The book is written with a natural division into two parts, the first dealing with nature and development of personality and the second with personality study in theory and practice. In the first part, after an introductory chapter providing orientation on current popular concepts, there are successive chapters on contributions to personality beginning at the prenatal stage and ranging through infancy, early and middle childhood, adolescence, early adulthood, love and marriage and the aforementioned chapters on middle and old age. For each period there is discussion of six principal considerations: factors influencing personality, major problems and mechanisms of adjustment, changes in motivation, changes in ability, significance of the phase for later developments and characteristic individual variations.

In the second section the authors present an impartial, well considered review of the range of variation in theories and the multiplicity of assessment technics. Helpful cross references are provided to phenomena discussed in part I.

The book is well printed. In addition to an index of names and an extensive general index, there is a compilation of more than 600 reference sources of material discussed in the text, for those interested in following up specific points.

Respiratory Enzymes. By Laurens Anderson and others. Edited by Henry A. Lardy. Second edition. Cloth. $4.50. Pp. 290, with illustrations. Burgess Publishing Company, 426-428 S. 6th St., Minneapolis 15, 1949.

This is a second and revised edition of a book published in 1939 by staff members of the University of Wisconsin. The various sections, written by experts in the field, have been revised and brought up to date, and there are additional chapters on glycolysis, the citric acid cycle, the metabolism of nitrogen compounds, energy relations and metabolic reactions, the control of metabolism and the distribution of enzymes within the cell. One could wish that the chapter on the citric acid cycle had been written from a less limited viewpoint, but on the whole the book can be recommended as a useful and handy work for graduate students in biochemistry and for investigators and others interested in cellular metabolism.

Pharmaceutical Compounding and Dispensing. Editor-in-Chief: Rufus A. Lyman, M.D., Dean, College of Pharmacy, University of Arizona, Tuscon. Advisory Editors: James M. Dille, Ph.D., Professor of Pharmacology, University of Washington, Seattle, and others. Technical Editor: George Urdang, Ph.G., D.Sc.Nat., Professor of the History of Pharmacy, University of Wisconsin, Madison. Authors: W. Paul Briggs, Sc.D., Commander (MSC) United States Navy, and others. Cloth. $6.50. Pp. 321, with 29 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C. 2; 2083 Guy St., Montreal, 1949.

This is the third in the series of books prepared under the general title "American Pharmacy." The authors are 11 men closely associated with pharmacy and, in most instances, teaching in the field.

Its 12 chapters include discussions of dispensing through the ages, the prescription, accuracy in dispensing, dosage forms, dermatologic pharmaceuticals, solutions, solubility, incompatibility and the incompatibilities of inorganic compounds, incompatibilities of organic compounds, prescription packages and labels, prescription pricing and interprofessional relations.

Each chapter seems to have been prepared with care by an author well qualified to write as an expert on his assigned subject.

Some chapters, seem more like monographs than individual chapters of a book, since the style and educational level of the material presented varies widely from chapter to chapter. Some of the subjects are discussed in a very practical manner as one would expect in a text on compounding and dispensing. Others, notably the chapter on solubility, are excellently done but it is doubtful that undergraduate students could follow the rather complex theoretical considerations involved.

A few minor errors are made throughout the text, such as the consistent mispelling of the term quaternary, which appears as "quarternary." Some of the examples of prescriptions given are poor representatives of prescription writing, although they may be some actually taken from prescription files. The authors are to be complimented on their individual contributions, but there appears to be a lack in over-all planning and editing of the book by the editors.

The book should prove a useful reference for teachers and students of pharmacy as well as others interested in the subject. There is no similar book devoted to this specific material which is more suitable for the purpose.

A Textbook of Surgery. By American Authors. Edited by Frederick Christopher, B.S., M.D., F.A.C.S., Professor of Surgery, Northwestern University Medical School, Chicago. Fifth edition. Cloth. $13. Pp. 1550, with 742 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1949.

This, the most recent edition of a well known textbook of surgery, should be received enthusiastically. Collaborators again have been carefully selected from among the outstanding leaders of surgical thought within this country. The avowed aim of the editor to give the student a "concise presentation of surgery which is characterized by maximum authority" has been largely accomplished.

In this edition the contents have been partially rearranged so as to present a more orderly sequence. Chapters on traumatic shock, acidosis and alkalosis, and water and electrolyte balance have been grouped together and moved to a position of prominence in the early part of the book. Topics pertaining to the musculoskeletal system, formerly somewhat scattered throughout the text, have been regrouped in a more logical order.

Rather extensive revisions of some chapters have been carried out. The sections on bacteriology and chemotherapy, and on surgery of the heart and pericardium have, among others, been brought up to date. Similarly, new diagnostic procedures, such as the utilization of electroencephalography and arteriography in the diagnosis and localization of cerebral lesions, have been introduced. Twenty-nine sections are new or have been completely rewritten.

If one can criticize this excellent book in any way, it is in that it covers the field of surgery so thoroughly that the undergraduate medical student may experience difficulty in grasping fundamentals discriminatingly. It will perhaps be more greatly appreciated by the graduate student of surgery and by the practitioner desirous of keeping abreast of the changing surgical scene. Also, any textbook compiled by a number of authorities

UNIVERSITY OF MICHIGAN LIBRARIES

must necessarily suffer from some disproportion in emphasis. Although extremely well edited, a few such discrepancies do appear in the text as is evident from the greater space allocated to a description of the operative technic of craniotomy than to a discussion of traumatic shock.

The book is attractively bound and its type clearly legible. The pages are set in double columns to enhance reading ease. The numerous illustrations have been carefully chosen and effectively complement the clarity of the text. This edition should further increase the popularity which this deserving textbook has already achieved. It can be heartily recommended as a valuable addition to every physician's library regardless of his special field of interest.

Human Sex Anatomy: A Topographical Hand Atlas. By Robert Latou Dickinson, M.D., F.A.C.S. Medical Aspects of Human Fertility Series Issued by the National Committee on Maternal Health, Inc. Second edition. Cloth. $10. Pp. 145, with 175 illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1949.

Fifty years of careful observation, notation and sketching of the organs of sex with correlation with clinical findings have resulted in this atlas of functional anatomy. This book is devoted chiefly to the anatomic relationships in the sex act. The increased recognition of the importance of sex education for the layman as an aid not only to successful marriage but to mental health is placing an additional stress on the physician. He must learn to give advice on a factual and scientific basis; in this way superstition and prurient ignorance will be defeated. However, much more is taught about the chemistry and histology of conception than the technics which bring it about. The Kinsey report reveals, despite its criticisms, that sex practice and theory may be quite divergent. How much better it is for the physician who advises on matters as vital as these that his knowledge be based on actual data than on a sort of intuitive reasoning and conjecture.

This volume is divided into two sections; preliminary reading matter in the first part is separated from the descriptive drawings which appear in the latter half of the book. This technic does not seem to be the most successful, since much of the emphasis of measurement and angle disappears in the necessity to continually refer from one end of the book to the other. This is but a minor criticism. The functional anatomy of sex appears to be thoroughly presented. The physician who must act as marriage counselor and guide to those embarking on a course for which modern society still leaves them poorly prepared will find this a valuable addition to his reference library.

Vitamin Methods. Edited by Dr. Paul György. Volume I. Cloth. $10. Pp. 371, with 20 illustrations. Academic Press, Inc., Publishers, 125 E. 23rd St., New York 10, 1950.

This is the first volume of a two volume book that is intended to serve both as a reference work and as a detailed manual of methods for those who are interested in vitamin research. To accomplish these purposes the editor has selected for the individual chapters authors who are recognized as competent in their respective specialties. There are five chapters dealing with physical, chemical, microchemical and microbiologic methods and optical instruments. The book is thoroughly documented with references. The author index at the back of the book takes up seven pages, and the subject indexes at the end of the chapters have 1,152 references. There are few illustrations except in the chapter dealing with optical instruments. The subject matter is presented to give the analyst sufficient information concerning the basic principles involved so that he can use the described methods intelligently. The style followed in presenting chemical and physical methods is to discuss the principles involved, list the reagents and instruments used and then give a description of the method in exact detail. Helpful comments are offered. The chapter on microchemical methods by Bessey describes the methods developed by Bessey and Lowry for determining vitamin content of blood, requiring only a few hundredths of a millimeter of fluid for each determination. The chapter on microbiologic methods by Snell is an excellent text on this subject that should meet the needs of those interested in vitamin research. This book is of limited interest to the clinician or dietitian, but it will be welcomed by the biochemist who is investigating problems relating to vitamins.

Acute Injuries of the Head: Their Diagnosis, Treatment, Complications and Sequels. By G. F. Rowbotham, B.Sc., F.R.C.S., Surgeon in Charge, Department of Neurological Surgery, Newcastle General Hospital, Newcastle-on-Tyne. With a Foreword by Professor Norman M. Dott, C.B.E., M.B., Ch.B., Professor of Neurological Surgery, University of Edinburgh. Third edition. Cloth. $7. Pp. 480, with 259 illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1949.

This volume is based on a large experience with cerebral injuries sustained during the recent war. In peacetime in this country, the automobile is responsible for many such injuries. In Britain 80 per cent of automobile fatalities are due to head injuries. The importance of a careful evaluation of all types of injuries and their management should be emphasized. There are not yet sufficient neurosurgeons to manage all these cases. The motor car, one of the leading killers, will provide more clinical material than any medical specialty can handle. Thus it is likely that the general surgeon and the general practitioner will be obliged to share the responsibility for many serious skull fractures and other traumatic lesions of the head.

The book begins with analysis of the mechanisms of head injuries. Diagnostic and pathologic concepts are presented. There are many photographs and illustrations together with illuminating case histories. Treatment both conservative and operative is described. Of extreme interest are post-traumatic sequelae. The intellectual and personality changes are well discussed. While it is recognized that even a careful study of this book will not make one a competent neurosurgeon, this volume is valuable in stimulating progress toward the solution of a pressing problem.

Heavy Metal Prosthetic Groups and Enzyme Action. By Otto Warburg. Translated by Alexander Lawson. Cloth. $3.75. Pp. 230, with 49 illustrations. Oxford University Press, 114 5th Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1949.

Recent experiments by Warburg in collaboration with B. S. Hendricks and Dean Burk of the National Cancer Institute were conducted on the maximum quantum efficiency of photosynthetic processes which have been disputed since the middle 1930's. These latest experiments, unfortunately, are not included in the last chapter of Warburg's book, which does not deal with heavy metals but with the quantum requirement of carbon dioxide assimilation using chlorella.

This, however, need not deter the biochemist from reading the book. The masterly handling of the chapters dealing with the heavy metal prosthetic groups reveals the author's long-continued interest in the studies of cell respiration. The subject of biologic oxidation is developed historically. Starting with the experiments of Edmund Davy in 1820 on the oxidizing action of platinum, the author gives a critical appraisal of the investigations which led to the examination of the oxygen transporting action of iron in model systems. The work on carbon monoxide-iron compounds is described and the theoretical and experimental considerations leading to the identity of the oxygen transporting enzyme as a heme compound and its differentiation from cytochromes is given. The author relates the oxygen-transporting enzyme to other hemes and discusses other enzymes containing metallic prosthetic groups, including phenol oxidase, the hydrogen-forming enzyme of butyric acid bacteria, yeast and muscle zymohexase and peroxidase.

The text is enhanced by the personal observations of the author, who has been engaged in the study of this field for more than 30 years. The biochemist should feel inspired by the extensiveness of Warburg's work.

Actions and Uses of Drugs for Medical Students and Practitioners. By Norman Sapelka, B.A., M.B., CH.B. Third edition. Cloth. 25s. Pp. 310. A. A. Balkema, 1 Burg St., Cape Town, 1949.

This book presents a concise account of the actions and uses of drugs, intended for the aid of medical students and practitioners. It includes detailed discussion of the important drugs of the British Pharmacopoeia, similar in most respects to the United States Pharmacopeia, together with frequent reference to new and nonofficial remedies. There is comprehensive coverage of the standard manuals of basic and of applied pharmacology, but much of the information has been obtained from the current literature.

The desirability of a small book to orient the beginning student and the busy practitioner in the fundamentals of the

actions and uses of official drugs is well recognized. A surprisingly complete and a readable account of these fundamentals has been achieved by the author. Careful selection has aided in condensation. This has also been accomplished by excluding documentary and bibliographic references, which sometimes tend to introduce controversial issues that hinder the beginner's approach to the subject of pharmacology.

A welcome feature of the book is organization and accessibility of the contents by the liberal use of paragraphing, italicized headings and especially by cross reference of pages on related subjects. A justifiable criticism might be found in the preponderance of description over the application of principles and the explanation of physiologic mechanisms involved. In the field of pharmacology, this problem of arrangement and relative emphasis has always been a difficult one to solve to the satisfaction of a wide variety of readers. Many physicians and students will find the book a helpful and stimulating source of information.

Haemolytic Disease of the Newborn. By M. M. Pickles, D.M., Nuffield Graduate Assistant in Clinical Pathology, Radcliffe Infirmary, Oxford. Cloth. $4.50. Pp. 181, with 21 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1949.

"As an example both of serendipity and of the frequent coincident discoveries that are made in scientific fields, the discovery of the Rh antigen has rarely been equalled." With this introductory sentence Dr. Pickles presents a clear and well organized account of the rapidly advancing knowledge of Rh antigens and antibodies and effectively brings together the voluminous and confusing literature which has appeared in the last decade on this subject. The majority of physicians have insufficient knowledge of immunology and genetics, and this, together with the fact that the newer knowledge has come at a rapid pace and has sometimes been presented in a confusing manner, has led many to give up hope of ever understanding the subject. In this concise monograph Dr. Pickles has done a great service in putting together not only the theoretical aspects of the Rh problem but has also presented in a satisfactory manner the practical details of pathogenesis and treatment which need to be known by those who are likely to encounter hemolytic disease of the newborn. The book provides the physician with answers to questions which so many patients ask and which need to be answered authoritatively. Finally, even those who are relatively well informed on the subject of Rh will find this a concise reference work.

Das menschliche Knochenmark: Seine Anatomie, Physiologie und Pathologie nach Ergebnissen der intravitalen Markpunktion. Von Prof. Dr. Med. Karl Rohr. Second edition. Cloth. 47.50 marks. Pp. 404, with 113 illustrations. Georg Thieme, 47 Diemershaldenstrasse, 14a) Stuttgart O, 1949.

Rohr's monograph on the bone marrow has enjoyed the deserved reputation of being one of the best on the subject in any language. The second edition perpetuates that opinion. It is current and authoritative and reflects the author's progressive thinking on the subject. In the introduction Rohr explains his own transition in thinking from purely cytologic considerations to the more dynamic concept of reactive responses of the reticuloendothelial system and other tissues. His approach to the subject of hematology is not confined to the blood-forming organs exclusively but to the organism as a whole. New approaches to aspiration of bone marrow, such as from the tibia, iliac crest and dorsal process of the vertebrae, are reviewed together with volumetric considerations of the aspirated marrow. An entirely new chapter on biochemistry and physiology of the marrow has been added as well as discussions on marrow culture and intrasternal infusions. It is also refreshing to find some consideration given to pediatric hematology, as this is usually omitted from most textbooks of this type and was omitted from the author's first edition. The entire chapter on lymphopoiesis has been rewritten, and a discussion on acute infectious lymphocytosis has been added. The chapter on neoplasms involving the bone marrow has been completely revised and developed more completely. Marrow reaction in acute infections has been extended to include the virus diseases. Other important changes have been made in the chapter on leukoses and leukemia, but there is no mention of folic acid antagonists in the discussion on treatment. The over-all improvement in the monograph by incorporation of more recent data and concepts will be obvious to those trained in hematology. It is well written and carefully organized. The illustrations are of the same excellent quality that appeared in the first edition. The bibliography while current and adequate for the text is a year or two behind times, but there are no important omissions. The second edition of this monograph should be in the library of pathologists and hematologists. It also will serve physicians in other disciplines as an authoritative source of reference on the bone marrow.

The Design and Equipment of Hospitals. By Ronald Ward, F.R.I.B.A., F.I.Arb., M.R. San. I. Cloth. $8. Pp. 360, with 217 illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1949.

The most difficult problem the administrator of a hospital must face is that of keeping before himself and his associates in the hospital the fact that the patient comes first. The multitudinous problems of each day are so likely to force this axiom into the background. Mr. Ward states in his preamble, "It must always be remembered in all discussion of hospital administration and design that hospitals exist for the patient and not the patient for the hospitals." This thought is foremost in Mr. Ward's idea of design, construction and equipment from the selection of the site to the plans for each unit.

The development of the subject is well done, with each section fully covering the various considerations such as administration, medical, special wards, special hospitals and construction. The typography is good and assists reading. Diagrams are well done and plentiful, furnishing much material for study in planning and remodeling. Photographs are good but limited, owing, the author explains, to printer's blocks having been surrendered to assist the war effort, to the large number of blocks and photographs destroyed by enemy action.

The American reader must remember the difference in nomenclature: e. g., sluice room for utility room, trolleys for carts. There is also the personnel to consider, i. e., almoner corresponding in a sense to our social service worker. Mr. Ward states that the general consensus is that the superintendent of a hospital be a qualified doctor. This is debatable.

The author refers frequently to "The Report." This is the Report of the Departmental Committee on the cost of Hospitals and other Public Buildings. Frequently "the report" did not recommend standards for departments (i. e., laboratories due to wide variance in demands.) The author does set forth plans for areas or accommodations for such as these.

Stress is placed on the matter of growth; hospitals should be able to grow. The ever increasing need for larger area in, for example, the laboratory, radiology department and pharmacy, because of increased demands by the public and medical staff, is probably more easily accomplished with the English preference for horizontal constructions than with the American vertical preference. The author admits that horizontal construction increases the number of personnel required for satisfactory operation.

The book is a good textbook; it is a reference for the hospital architect, the hospital administrator. A student of hospital administration also will find it valuable.

The Rat in Laboratory Investigation. By a Staff of Twenty-Nine Contributors. Edited by Edmond J. Farris, Ph.D., Associate Member in Anatomy, Executive Director the Wistar Institute of Anatomy and Biology, Philadelphia, and John Q. Griffith, Jr., M.D., John Q. Griffith, Jr., Research Foundation, Philadelphia. Second edition. Cloth. $15. Pp. 542, with 179 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1949.

This comprehensive and valuable presentation of the various aspects of the rat as material for experimentation in medicine, surgery, biochemistry, biology and psychology is organized into 22 chapters. Each is written by one or more experts in a field of special interest. The first two chapters describe the breeding of rats in the laboratory and the general methods of handling, injection and anesthesia. The gross anatomy is then concisely described and well illustrated. A useful and stimulating chapter outlines the embryology of the rat and the experimental methods applicable from the germ cell to birth.

As a foundation for nutritional work the chapter on dietary requirements and one on metabolism are complete and well

UNIVERSITY OF MICHIGAN LIBRARIES

organized. Other chapters describe the technics, problems and characteristics of the teeth, the digestive system, the central nervous system, the osseous system and the eye.

The chapter on behavioral phenomena of rats with the variety of problems to which they are adapted is interesting and suggestive. It is followed by a chapter on the circulatory system and one on hematology, which cover adequately an important and active field of investigation. Two other chapters deal with the use of rats for bioassay of hormones and in pharmacology. A useful table of dosages is included.

Radiology and surgery also are considered. A most valuable description of surgical technic is given covering 22 experimental surgical procedures. A helpful discussion of histologic methods adapted to rat tissues is the subject matter of chapter 17. The three final chapters deal with the protozoan and with the metazoan parasites of rats and with their spontaneous diseases.

Throughout the work the tables are clear and utilizable, the figures excellent and the style of presentation concise and informative. Each chapter has its own well chosen and entirely adequate bibliography. The volume seems to be indispensable to anyone who uses or intends to use rats for any experimentation whatever. It offers a real service which will save a vast amount of unnecessary trial and error and which will contribute significantly to the more rapid and accurate advance of research for years to come.

The Venereal Diseases: A Manual for Practitioners and Students. By James Marshall, M.D., B.S., M.R.C.S., Director, Venereal Diseases Clinic, Royal Northern Hospital, London. Second edition. Cloth. Price, $5.50. Pp. 369, with 105 illustrations. The Macmillan Company, 60 5th Ave., New York 11; 10 St. Martin's St., Leicester Sq., London, W.C.2; [Cambridge University Press, Bentley House, 200 Euston Rd., London N.W.1], 1948.

This is a small manual which attempts to cover the entire field of venereal diseases in 369 pages. The book contains eight color plates and numerous diagrams and illustrations of varying quality. It is not difficult to read and is written in a rather informal style, emphasis being placed mainly on gonorrhea and syphilis. The discussion of gonorrhea is adequate, but that of syphilis and the other venereal diseases is extremely brief and incomplete. The author takes a positive stand on many controversial subjects, often contrary to the opinion of the majority of authorities in this field. The rapidly changing concepts of treatment of the venereal diseases have outdated the treatments recommended and have lessened the usefulness of the book.

The book is essentially a brief synopsis of one man's opinions on the venereal diseases.

The 1949 Year Book of General Surgery (August, 1948-July, 1949). Edited by Evarts A. Graham, A.B., M.D., Professor of Surgery, Washington University School of Medicine, St. Louis, Missouri. Cloth. $4.75. Pp. 707, with 216 illustrations. The Year Book Publishers, Inc., 200 East Illinois St., Chicago 11, 1949.

Most physicians are familiar with these pocket-sized manuals and their fund of abstracted knowledge. Many doctors will read more than one of the yearly series. Their value lies not only in a review of current literature but in the over-all indication of the trends in a given specialty. It is interesting that in this surgical year book there is much space devoted to physiology, and function of organs. More and more surgery involves a knowledge of basic sciences other than anatomy, and indeed the surgeon seems to be dealing with the fundamental subjects of physics and chemistry more often than seemed possible a few years ago. The critical eye of the distinguished editor is much in evidence in this year book of surgery. Most physicians and all surgeons can benefit from possession of this book.

Einführung in die pathologische Physiologie. Von Professor Dr. Max Bürger, Direktor der medizinischen Universitätsklinik Leipzig. Third edition. Half-cloth. 42 marks. Pp. 496, with 138 illustrations. Georg Thieme, Thomaskirchhof 21, (10b) Leipzig C1, 1949.

In the 18 chapters the author reviews, with good judgment and objectivity, the causes and the effects of disorders in function of all the organs of the body (including aging). This is a large order, calling for comprehensive knowledge and critical appraisal. The author qualifies in both categories. This edition is an illustration of German medical science at its best.

A Twentieth Century Physician: Being the Reminiscences of Sir Arthur Hurst, D.M., F.R.C.P. With a Foreword by Professor John A. Ryle, M.D., F.R.C.P. Cloth. $3.50. Pp. 200, with illustrations. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1949.

This small book is the autobiography of a distinguished physician of England, Sir Arthur Hurst, who died in 1944. Lady Hurst and Dr. John A. Ryle, another professor and a friend of many years, shared the task of reading and arranging the completed chapters. Sir Arthur studied medicine at Guys Hospital and then traveled widely. He, like many other Englishmen, writes in a beautifully clear and charming style. The damaging effect of Hitler on German medical literature caused him to cancel his subscription to a German weekly medical journal which after 1936 "ceased to contain anything worth reading." This fact accounts in part "for the contrast between the extremely high incidence of serious infections in the German army compared with the amazingly good health of the soldiers of Great Britain and her Allies on every front." On his first visit to America, Sir Arthur visited Harvard Medical School. He says that a millionaire had presented a new library to New York, insisting that it be built of pure white marble imported from Sicily. Every block that showed a streak of gray was rejected and sold cheaply to Harvard for new medical buildings, which looked better for not being of unrelieved white. In his first six months of private practice, Sir Arthur took in 8 guineas, and in all of the following year he made only 163 guineas. He was asked to see the young daughter of a tailor, who lived with his parents, wife and children over his workshop. The first floor was reached by a ladder from the middle of the shop. Sir Arthur climbed to the patient's bedroom, where she had been lying completely paralyzed for six months and where the family, their friends and the rabbi had gathered to hear the verdict. Half an hour later, Sir Arthur and the family physician descended the ladder followed by the patient, whose paralysis had proved to be hysterical. The family rejoiced that a miracle had been performed. Sir Arthur's house physician, Sir James Goodhart, was one of the few physicians of his time to recognize the great influence of the mind on the functions of the body. Goodhart had no telephone and in this way tried to keep his practice from becoming too large. In consultation with Sir James Mackenzie, Sir Arthur saw, apparently, the first patient in whom it was demonstrated that the auricles were beating at a much faster rate than the ventricles, and thus they came to diagnose auricular fibrillation. Sir William Osler told Sir Arthur that he did not intend to publish any new editions of "The Practice of Medicine" after the eleventh edition and suggested that Sir Arthur write an entirely new textbook, which Osler thought would be regarded as the successor of his great book. Sir Arthur decided against the undertaking, although later he wrote certain sections in other medical books and published many important papers. During the first world war, Sir Arthur's hospital was joined by an American medical officer, Capt. Joseph W. Moore of New York who, it is said, had been the first to demonstrate the spirochetal origin of general paralysis by finding the organism in the brain in fatal cases. It is difficult to understand, he says, "why the Japanese, Noguchi, should have received all the credit for this discovery, as Moore published his paper months before Noguchi." He writes of another visit to America, of establishing his own clinic on returning to England, of the Croonian lectures which he gave and of the award of medals. Sir Arthur did not live to complete his autobiography. The later chapters probably would have been expanded and perhaps improved had he not died suddenly.

La formación espiritual del individuo: Psicología, educación, hygiene mental. Por Honorio Delgado. Third edition. Paper. Pp. 241. Imprenta Santa María, Lima, 1949.

This is a monograph in Spanish dealing with individual psychology in its relationship to personality development, education and mental hygiene. It can be recommended for Spanish-reading doctors, since its concepts are sound and modern. Published in Peru, it naturally reflects the South American atmosphere, which might give it additional interest and value for American physicians with scientific and personal connections among our Spanish-speaking neighbors.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SPERM COUNTS

To the Editor:—A man brought in some semen collected in a condom. It was kept at 80 F. and brought to me 20 minutes after ejaculation. With 60 million sperm per cubic centimeter, he had dead sperms in two different specimens. In another case, a man who always felt urine come with the ejaculation had a 12 cc. specimen collected and in a sperm count of 12 million there were dead sperms. He says he has always had urine with the ejaculation as far as he can remember. There is no history of incontinence. He has been married three years without offspring.

J. R. Schmidt, M.D., Mountain Lake, Minn.

ANSWER.—With respect to the first case described, the use of a condom for collection of semen for analysis is to be condemned. In the manufacture of certain condoms various spermicidal chemicals and powders are employed. Semen for analysis is best collected in a clean, wide-mouth bottle after three to five days of sexual abstinence.

A count of 60 million sperm per cubic centimeter represents the lower limit of normal. A determination of the percentage of abnormal forms is important. Semen containing more than 25 to 30 per cent of abnormal forms is considered deficient. Normal semen contains dead sperm. To be considered normal, at least 75 per cent of the sperm in a specimen of semen should exhibit moderate to swift motility; the motility of the remaining sperm may be sluggish or absent. An increase in the number of nonmotile sperm suggests (a) an inherent defect in spermatogenesis, (b) a defect in the "ripening" process in the epididymis and ductus deferens or (c) malfunction of the prostate or seminal vesicles. Unfortunately, the exact seat or cause of this abnormality cannot usually be ascertained and specific therapy is not known. Infections of the prostate or seminal vesicles should be treated by suitable means.

In the second case described, a volume of ejaculate of 12 cc. is much greater than the normal value, 3.5 cc. Cases have been reported, however, in which the volume of the ejaculate has been as high as 35 cc. The discharge of urine at the time of orgasm is a most unusual occurrence and would suggest failure of closure of the internal vesical neck. It would be difficult to establish definitely the presence of urine in the semen inasmuch as urea, the substance commonly employed in detecting urine, is present in high concentration in normal semen. Uninfected urine is spermicidal only by virtue of the fact that urine is not isotonic. In spite of the large volume of ejaculate a count of 12 million sperm per cubic centimeter is low. The total count in this ejaculate would be about 144 million, whereas the total number of sperm in a normal ejaculate varies from 300 to 600 million. It is probable that this patient's fertility is greatly reduced. However, results of treatment of male infertility are disappointing. Various endocrine products have been employed to affect spermatogenesis and thereby increase the sperm count, or decrease the percentage of abnormal forms, or impart motility to the sperm, with equivocal results. The administration of thyroid extract to patients whose basal metabolic rate is low has been reported to increase fertility. Various anterior pituitary or anterior pituitary-like substances and urine of the pregnant mare have been employed without spectacular results. Small doses of testosterone are reported to stimulate spermatogenesis. Vitamin E has been administered with equivocal results. General hygienic measures and the avoidance of alcoholic excesses are urged. Abnormal anatomic and physiologic conditions in the wife should be excluded.

UNINTENTIONAL DYEING OF HAIR

To the Editor:—The distal half of most of a young woman's hair is a yellowish blond and the proximal half is black. The admixture of color is not universal, but patchy. There is no other scalp disease. Her health is perfect. She uses no dye and never goes to a beauty parlor. She does not use any waveset or cold wave sets. She is taking vitamin A, about 50,000 units daily, but no other medication. M.D., Massachusetts.

ANSWER:—Discoloration of the hairs, as in this case, may be due to unintentional dyeing from contact with perfumes. Dyes, such as orange II, when combined with acid perspiration, may dye the hair yellowish orange. Ordinarily the perfumed cosmetic is transferred to the hairs by the hands, which accounts for the patchy distribution and the involvement of the distal portions of the hairs only.

WASSERMANN FASTNESS

To the Editor:—A white woman, aged 50 years, was infected by her husband with syphilis about 27 years ago. The condition was not discovered until about four years later, when she was treated for nearly two years with arsenicals and bismuth preparations. The blood reaction has remained positive throughout this time, and she has been told that she is Wassermann-fast. She has not felt well, however, during all this time, and, because of the type of work that she is doing, examination of the spinal fluid has not been done. There are, however, no demonstrable neurologic changes. After a recent severe cold, acute sinusitis developed, and the patient was given several doses of penicillin, 400,000 units daily. She immediately experienced a sense of well-being, so that she has begun to wonder whether an intensive course of penicillin therapy might alter her Wassermann-fastness. Could penicillin therapy be carried on at home, since it would be difficult for her to leave her work to enter a hospital?

Ray S. Wycoff, M.D., Lexington, Neb.

ANSWER.—Whether the patient in question should receive any antisyphilitic treatment, penicillin or other, cannot be determined without an examination of the spinal fluid. In spite of the fact that this is "difficult," it should be no longer postponed. Assuming that the spinal fluid is normal, there is no point whatever in administering penicillin for the sake of attempted reversal of a long-standing, persistently positive serologic reaction of the blood. The patient should read the discussion of seroresistance prepared particularly for patients by Moore (Seroresistance [Wassermann-Fastness] in Syphilis: A Discussion for the Patient, *Am. J. Syph., Gonor. & Ven. Dis.* **30**:125 [March] 1946). There is no objection, of course, to the use of penicillin for intercurrent infections nor, indeed, for syphilis, provided both doctor and patient understand that in many instances its only benefit is in terms of psychotherapeusis. If the patient's spinal fluid is abnormal, she should be retreated with penicillin now. This can be done on an ambulatory basis with procaine penicillin in oil with 2 per cent aluminum monostearate added, in single intramuscular injections of 600,000 units each given every third day (at the convenience of patient and physician) to a total of about 10,000,000 units.

DIABETIC NEURITIS

To the Editor:—A severely diabetic patient has signs of diabetic neuritis, involving her feet particularly. Her condition has become so bad that she is losing her proprioceptive ability. Treatment with local heat, infrared rays, diathermy, ultraviolet rays, local infiltration with procaine hydrochloride, large doses of thiamine chloride given intramuscularly and crude and refined liver extract have been tried, with transitory improvement followed by recurrence of her complaints of burning of the skin and inability to "feel her feet." Noah Barysh, M.D., New York.

ANSWER.—Improvement may come slowly in certain patients with diabetic neuropathy. It is not uncommon for months to elapse before recovery, and in certain cases as long as two or more years may be required. This slow progress tries the patience of both patient and doctor, but experience has shown that the prognosis for partial or complete relief of painful symptoms is good, provided treatment of the diabetes is careful and continuous. It is true that diminished sensitivity to touch or pain may be permanent.

In diabetic neuritis there may be not only sensory signs and symptoms, such as numbness, tingling and pain, but also muscle weakness of varying degree. The changes are those in any peripheral neuritis. The spinal fluid characteristically shows no increase in total protein without increase in cells.

Treatment consists of continuous, painstaking control of the diabetic condition with diet and (usually) insulin. Although no dramatic effect may be expected except in cases of dietary deficiency, it is reasonable to provide large amounts of vitamin B complex daily. Recently some have reported improvement in cases of diabetic neuropathy by the giving of vitamin B_{12} intramuscularly in dosage of 15 micrograms once or twice a week over a period of several weeks. Other measures of treatment include physical therapy and orthopedic care to restore lost muscle function and appropriate analgesics to control pain during the acute stage. One must always watch for other conditions, such as spinal cord tumor, which may simulate diabetic neuritis.

UNIVERSITY OF MICHIGAN LIBRARIES

HYPERHIDROSIS

To the Editor:—A 27 year old, well developed white woman complains of excessive perspiration of the hands and feet, predominantly of the palmar areas, always associated with a sensation of coldness as well as objective evidence of a cold, moist skin. Her parents noticed this when she was a baby, and it has been constant ever since during any season or at any time, night or day, and during sleep. Otherwise she seems to have a completely normal history, and physical and neurologic examinations have not revealed abnormalities. She seems to be stable emotionally. Blood pressure is 124 systolic and 80 diastolic in both arms. A complete blood cell count and urinalysis gave normal results. The basal metabolic rate is + 10 per cent and the sedimentation rate 8 mm. in one hour. Would intramuscular injections of tetraethyl ammonium chloride be beneficial? What surgical measures would you recommend?

C. D. Bouchillon, M.D., Macon, Miss.

ANSWER.—This is a case of hyperhidrosis, which, since it is symmetric in distribution, is probably of functional origin. The cause of this condition is not known, but it is apparently a manifestation of localized increase in tone of the sympathetic nervous system with vasoconstriction of the involved parts, thus accounting for the coldness that accompanies the perspiration.

Topical drug treatments are usually not effective. Applications of formaldehyde for several days give relief at times, but may lead to sensitization and irritation. Aluminum chloride in 25 per cent aqueous solution applied at night before retiring may be helpful in some cases. Roentgen therapy is sometimes invaluable and may give a permanently good result. Great care is necessary in using this modality, to avoid serious damage to the skin. It must not be used to the point of drying the skin excessively, which can be more uncomfortable than the original excessive sweating.

Atropine is an effective anhydrotic agent but produces unpleasant side effects (xerostoma, ophthalmoplegia, tachycardia) in the doses required to control the symptoms (0.5 to 1.5 mg. four times daily). Tetraethylammonium is effective, but its action is transient and the side effects are incapacitating. Cutting the sympathetic nerves to the affected parts provides definitive treatment, but the decision as to whether or not to operate must be based on a careful weighing of the severity of the symptoms against the risks, expense and inconvenience of operation.

RIGHT UPPER QUADRANT PAIN

To the Editor:—A white man, age 38, from 1933 to 1935 had attacks of pain in the right upper quadrant of the abdomen. He experienced at the same time nausea and vomiting, but no jaundice, diarrhea, or constipation. The episodes usually occurred at night and lasted a few hours. Roentgenograms of the gallbladder in 1935 were reported as showing ptosis of the gallbladder. Since then he has had no more attacks of pain, but he complains of periods of belching, slight nausea, salivation and intestinal distention lasting a few days and then disappearing. Roentgenographic studies of the gallbladder in 1945 and 1946 failed to reveal a gallbladder shadow. His general physical condition at present is good. Should this patient be advised to have a cholecystectomy?

F. H. Morales, M.D., San Juan, Puerto Rico.

ANSWER.—In view of the symptoms of pain in the right upper quadrant of the abdomen, belching, nausea, salivation and intestinal distention coupled with failure to secure a gallbladder shadow after either oral or intravenous cholecystography, the nonfunctioning of the gallbladder probably is due to the presence of gallstones. Somewhat similar symptoms, however, can arise as a result of the irritable colon, so that it would be unwise to promise much as a result of cholecystectomy. The patient can probably be assured of considerable improvement as a result of the operation, with the possibility of complete relief.

BLOOD CHOLESTEROL

To the Editor:—What are the normal values for blood cholesterol? Some authors state 100 to 200 mg. per hundred cubic centimeters. The A. M. A. Interns' Manual (1948 edition) gives 110 to 390 mg. as the limits of normal. Are there any serious implications to a blood cholesterol value that varies between 335 and 400 mg.? A patient had a blood cholesterol level of 363 mg. after strictly adhering for eight months to the low lipid, low cholesterol diet outlined in the Mayo Clinic Diet Manual (1949). The test three and a half months previous to the 363 mg. reading had shown a blood cholesterol level of 371 mg. per hundred cubic centimeters. Is there any benefit to be derived from following such a diet? Is fat restriction such as this harmful?

Ivan C. Jackson, M.D., Portland, Ore.

ANSWER.—Cholesterol exists in the blood in two forms: free and esterified (combined with fatty acid). Normal total plasma cholesterol values obtained by different methods are variable, ranging from 120 to 350 mg. per hundred cubic centimeters. The generally accepted range of normal values is 130 to 240 mg. With Bloor's method the normal range is said to be 150 to 250 mg. Normally 40 to 70 per cent of the total cholesterol is in the form of esters, the remaining portion being free cholesterol.

Diets rich in lipids, diabetes mellitus, arteriosclerosis, obstruction in the common bile duct, cholelithiasis, hypothyroidism, nephrosis and familial hypercholesteremia are conditions in which one finds an increased plasma cholesterol level. In pregnancy it has been reported increased from the third month to the second week after parturition. At that time it is about one third higher than it is normally. Diets containing inadequate amounts of lipids, high temperatures, anemias, acute toxic degeneration of the liver, pernicious anemia and hyperthyroidism are conditions in which are found a decreased plasma cholesterol level. In parenchymal hepatic disease a more pronounced decrease is found in the esterified fraction of the cholesterol.

It is generally accepted that persistently high plasma cholesterol levels are associated with development of arteriosclerosis. This is seen in familial hypercholesteremia and uncontrolled diabetes mellitus.

In hypercholesteremia of the familial type there appears to be no change in the plasma cholesterol level after a fat-restricted diet. This has been evaluated on numerous occasions with poor results. Adherence to any diet which has severe fat restriction over a long period of time is fraught with danger, inasmuch as the absorption of fat-soluble vitamins is impaired.

There are some indications that a large part of the cholesterol content of the plasma is formed within the body, probably as a by-product of the fat metabolism. It is possible that the acetic acid radical, of which the body has a large daily turnover, forms an integral part of the cholesterol molecule. This would explain why a diet low in cholesterol has little or no effect on hypercholesteremia.

TUBERCULOUS ABSCESS

To the Editor:—Please outline treatment for a 23 year old white woman with a tuberculous abscess involving the soft tissue above the left clavicle with some irregularity of the clavicle noted roentgenographically. The patient has been treated with streptomycin 1 Gm. daily in divided doses for 60 days. A roentgenogram showed improvement of the bony change and almost complete closing over of the abscess, but a culture of the area still was positive for tuberculosis. A second course of streptomycin, 0.5 Gm. daily for 30 days, was just terminated because of tinnitus. I have not yet taken another culture, but the patient still has occasional temperature up to 99.4 F., and the abscess, although almost healed, is still present as a swollen smaller area with incomplete granulation. The orthopedic consultant is reluctant to operate. The patient's general health is good. Will surgical treatment eventually be necessary? Is local injection of streptomycin into the abscess cavity indicated?

M.D., New York.

ANSWER.—The most important features to consider in this case are the resistance of the bacilli to streptomycin and the amount of damage to the labyrinth. The tinnitus suggests damage may have been caused already. If there is no damage to the labyrinth and the bacilli are still sensitive, treatment should be continued with dihydrostreptomycin alone or combined with paraaminosalicylic acid. The latter seems to suppress the development of resistance in the bacilli. If there is resistance to streptomycin, paraaminosalicylic acid alone should be given for four months. If closure is not effected after a reasonable time (say 60 days), operation should be considered. Local application of streptomycin is of little use.

GEOGRAPHIC TONGUE

To the Editor:—I have been suffering from so-called geographic tongue for the past year. I would appreciate advice in regard to the newest procedures of treatment.

M.D., Colombia.

ANSWER.—If the condition is truly "geographic tongue" (called lingua geographica, erythema migrans or wandering rash), the causes and therapy are obscure and the prognosis is excellent. The condition described apparently is chronic, which is characteristic. The more fixed lesions of neoplasm, tuberculosis and syphilis, as well as the less serious oval plaques of lichen planus, early leukoplakia and mild eruptions due to drugs would have to be excluded. Lesions of sprue, several vitamin deficiencies and Moeller's glossitis must be ruled out. The differentiation is usually easily possible, since well developed geographic lesions are recurrently changing and self limiting, have few symptoms unless stimulated by irritating food or drink, have no sequelae and show typical irregular depapillated areas with raised red margins and whitish yellow borders. The question as to which comes first, an advancing margin or an enlarging central area, seems unsettled, but the changes occur almost daily.

The lesions often are present in anxious or tense persons. The term congenital is poorly applied, since the lesions may occur

in either sex at any age. No constant allergic basis exists; no fungus or bacterial origin is known; a viral cause has not been proved; deficiencies are not especially present, and a trophic source has not been proved.

Treatment is nonspecific and is not urgently necessary. After more serious lesions have been ruled out, the patient should be reassured. Various methods may then be tried, including 2 cc. capsules of dilute hydrochloric acid U. S. P. with each meal, 15 mg. riboflavin per day and 50 to 100 mg. nicotinamide per day for several weeks, all of which have effected some empiric success. The role of the newer antibiotics has not been determined.

ACID PERSPIRATION

To the Editor:—**My patient works in the machine shop. The parts which he turns out are rusty where he has touched them. He notices the same trouble when he holds his tools; he can see the imprints of his hands on his tools, and the parts he has touched become rusty. He had similar trouble while in the Navy in 1942, but it disappeared within a week. He denies sweating excessively. He feels well. A questionable tuberculosis lesion caused the Navy to reject him six times, but he was finally accepted. He was in the Navy three years and enjoyed good health. He is not taking medicine. He eats a lot of meat and smokes 1 package of cigarets a day. He has been married for five months. His weight is 170 pounds (77 Kg.), height 5 feet 10½ inches (250 cm.), blood pressure 126 systolic and 84 diastolic, hemoglobin 118 per cent red blood cell count, 6,210,000 and white blood cell count 11,000, with 30 lymphocytes; 6 transitional cells, 61 neutrophils (4 nonsegmented cells), 2 eosinophils and 1 basophil. The urine is normal.**

Martin Karr, M.D., San Mateo, Calif.

ANSWER.—Among healthy workers it is well known that some, more than others, secrete a quality of sweat that corrodes fine surfaced metals. This is related to acids and acid salts. Nearly all perspiration is acid, but for some few persons, the p_H value may run as low as 3, which is highly acid. It is common to encounter sweat with a p_H of 4 to 4.5, notably on the palms and fingers. The degree of sweat acidity varies as to season, activity, quantity of sweating, bathing habits, age and sex. The menstrual cycle includes demonstrable variations in sweat-acid levels. An acid perspiration is desirable as a factor in the maintenance of the skin's normal acid mantle and thus is physiologically important. The quantity of sweat does not regularly determine the degree of acidity. In the present instance it may prove necessary to resort to applications of protective creams designed for this purpose. Free use of ordinary soap and water may eliminate excessive skin acidity, but any skin so treated is more vulnerable to the action of skin irritants.

FAMILIAL POLYPOSIS

To the Editor:—**A 20 year old girl with familial multiple polyposis plans to be married. The incidence of polyposis in her family seems to be 1 in 3 and is limited to the maternal side. She had an ileosigmoidostomy with colectomy two years ago. She is well except for a few small polyps in the rectosigmoid, which are controlled by fulguration. Should she have children?**

Joseph M. Gross, M.D., Brooklyn.

ANSWER.—There are two factors to consider. From the standpoint of cancer control a definite proportion of this woman's offspring will inherit polyposis. This inheritance is due to a mendelian dominant trait. To diminish further spread of the disease therefore, she should not have children. From a philosophic standpoint, she should be advised of the real possibility of the development of cancer of the bowel during the third or fourth decade of life. The hereditary characteristics of her disease should be adequately explained to her, after which the decision is hers.

PERIDONTOCLASIA

To the Editor:—**What blood chemistry or other tests are indicated in a case of moderately severe peridontoclasia in a man age 42. The patient in question had osteomyelitis of a femur following bone plating of a fracture 25 years ago. He has had no trouble with it for 15 years, and recent roentgenograms do not reveal any activity. There are no subjective complaints nor any physical or systemic defects present. Information as to further studies and treatment would be appreciated.**

M.D., West Virginia.

ANSWER.—There is no radical new theory or treatment for peridontoclasia (pyorrhea alveolaris). It may be the end result of chronic or severe gingivitis, with infected pockets and peridental bone involvement; it may be localized or widespread and may be seen in otherwise healthy persons. There may be several stages in the development. There may be such factors as ischemia, endocrinopathy (including diabetes), the use of acid-producing foods, infection, allergy and subclinical vitamin deficiencies. No specific organism is responsible, however, and American authorities are not agreed that either food or bacterial allergy is often causative. It is improbable that an old healed osteomyelitis is related to the oral lesions, although the duration of the latter is not stated.

Blood chemical or biologic tests would not be helpful, unless a blood sugar determination is needed after urinalysis. A complete blood cell count could exclude such factors as leukopenia, anemia or polycythemia. A dentist would want roentgenograms and might possibly do local bacteriologic studies, or even the guaiac (Box) test for pus.

The wisest course would be to exclude any related systemic conditions and entrust the patient to a competent and interested dentist. There seems to be no special advantage in either radical surgery or cautious cautery and excision; in most cases a conservative course of pocket elimination may be tried first. Modern care would include the use of concentrates of vitamins C, B, A and D; the use of a slowly absorbed penicillin each day, especially when extraction is needed, and the continuance of oral hygiene, mouth washes and massage indefinitely after active therapy.

STRICTURE OF URETHRA

To the Editor:—**A patient has chronic gonorrhea with stricture of the urethra and needs a plastic operation by an expert urologist. This 47 year old Hindu complains of occasional attacks of retention of urine with fever, burning and difficulty during micturition and burning in the anus during micturition and passing of stool. Dilatation has been tried, but it failed. Diathermy has not helped. Urinalysis showed 15 to 20 pus cells per microscope field (1/12 oil immersion) and gram-negative diplococci resembling gonococci.**

F. G. Suri, M.D., Lucknow, India.

ANSWER.—This patient presents a urologic problem which concerns adequate dilatation of a probable filiform stricture of the bulbous portion of the anterior portion of the urethra. Until the stricture is dilated and kept dilated, the urinary infection will continue to cause symptoms. It is a fundamental principle that infection cannot be eradicated completely in the presence of obstruction. Excretory urograms would indicate the function of the kidneys and the extent of their dilatation. The treatment of urethral stricture is especially difficult in the dark-skinned races, because of the tendency for dense urethral scars to form after gonorrheal urethritis. The passage of filiform bougies, followed by increasingly large sounds or bougies of the LeFort or Phillips type, requires adequate anesthesia, preferably intravenously administered thiopental sodium, and considerable manual dexterity. Once an adequate urethral caliber is attained, an inlying catheter, a small Foley type if possible, should be passed and allowed to remain in the urethra as long as possible, even as long as a month. This is the most effective method today of inducing a stricture to remain open. The mere presence of the catheter acts as the most potent dilator available. The treatment may be repeated whenever necessary and is at times more effective in cases of this type than repeated dilatations with sounds.

SPLITTING OF LIP

To the Editor:—**I am 65 years old and for many years I have been annoyed with splitting of the lip. Formerly the split would occur in the center of the upper or lower lip at the embryologic fusion site. For four years the corners of my mouth have been splitting. My lips, face and hands are extremely dry, and hyperkeratoses of the face have to be removed every few months by high frequency spark. I have taken thyroid (basal metabolic rate usually about —12 to —15 per cent), but the thyroid produces a rapid pulse and in general causes disagreeable effects. I have taken adequate amounts of vitamins, including 50,000 units of vitamin A, 1,000 units of vitamin D and above normal requirements for vitamin B complex. I have taken up to 75 mg. of riboflavin daily. I now take testosterone propionate, 5 mg. sublingually, twice daily. I use an ointment (home made) of wool fat plus olive oil.**

M.D., California.

ANSWER.—The impression gathered from this report is that the patient has a Chataigne type of skin, associated with keratoses, and possibly the splitting of the lip is evidence of sensitivity to light. If these splits persist, the possibility of malignancy must be considered, and, if they are extremely annoying, a simple procedure would be to excise the vermilion border and bring a flap of mucous membrane from within the lip or the cheek in its place.

For the perlèche, or the splitting in the corners of the mouth, the use of vitamins should be continued. Touching the corners with a silver nitrate stick may help. Frequently the lesions in the corners of the mouth are aggravated by associated fungus infection. Avoidance of exposure to sunlight in view of the patient's age and the type of skin seems advisable.

UNIVERSITY OF MICHIGAN LIBRARIES

RECURRING ATTACKS OF PLEURISY

To the Editor:—A 34 year old white woman with three children has had attacks of pleurisy four or five times each year during the past six years. They usually follow an upper respiratory infection, a change in weather from warm to cold or even the chilling from working in a damp basement. An attack lasts about a week with temperature of 100 to 101 F. for the first twenty-four hours. Sometimes the pain persists for weeks after an attack. The chest pain, which is made worse by coughing and deep breathing, is not localized to any particular portion of the chest. Several attacks have been quickly controlled with aureomycin but the attacks recurred just as in previous years. Sulfonamide and penicillin have not had any effect on either the attack or the recurrences. A mixed "cold vaccine" (immunovac®) has had no effect, nor has the use of antihistaminics during the early stages, treatment for a low grade anemia, vitamins, or other nonspecific therapy been helpful. This condition began shortly after the patient moved to this part of the country; it was not present when she lived in a drier climate, where there were fewer, less drastic weather changes. My impression is that she has a virus infection. On several occasions roentgenograms have shown small areas of pneumonitis, although these are usually absent during the milder attacks. I would like advice. Charles H. Kramer, M.D., Palatine, Ill.

Answer.—Some persons are peculiarly vulnerable to cold; in fact, some allergists include "cold" in their consideration of the causes of one form of allergy. The chilling of the skin presumably releases the trigger action of histamine-like substances, with a resulting depression of resistance, edema and other changes, leading to discomfort and disease.

In the case described, it is conceivable that the infiltrations in the lung may be a part of the process similar to the condition described by Loeffler (syndrome: fleeting infiltration of infraclavicular portion of lungs with severe blood eosinophilia, *Beitr. z. klin. d. Tuberk.* **79**:388 [Feb. 22] 1932). The disease has been described as "benign, fleeting pulmonary infiltrations with eosinophilia." It would be interesting to know whether the patient in question has eosinophilia during the attacks.

The prompt recovery after the use of aureomycin, however, leads one to suspect that there may be an infectious component as well. Since it is known that most colds are caused by viruses, it is possible that the virus infection followed the chilling of the body, involved the lungs and pleura and set up the disease process.

Prevention consists of keeping the patient warm all the time by use of heavy clothing and a warm atmosphere. If this is not possible, a change of climate may help, but it must be remembered that it is cold sometimes even in the far south. "Perpetual springtime" occurs in but few places.

HOMOGENIZED MILK

To the Editor:—What is the nutritional value of homogenized milk, in comparison to pasteurized? There is a rumor here that all the good of the milk is destroyed in the process of homogenization. M.D. Colorado.

Answer.—Evidence that homogenization results in a lower nutritive value is not available. The process alters the physical state of the milk constituents but does not result in chemical changes. Assays for the various specific nutrients in milk before and after homogenization have not shown any significant differences. The process does increase the surface area of the fat particles and thus favors the digestion and absorption of fat. This may result in a better utilization of this nutrient by some persons. Homogenization by decreasing the oxidized flavor detectable in certain milk tends to improve palatability. In general, homogenization appears to be a beneficial procedure. These comments relate to pasteurized milk. Homogenized raw milk is not marketable because of the rapid development of rancidity.

LOSS OF HAIR FOLLOWING USE OF PROPYLTHIOURACIL

To the Editor:—For five months I have been administering propylthiouracil to a 43 year old woman with exophthalmic goiter. Clinical results have been excellent. The basal metabolic rate has dropped from + 55 per cent to 0. Two weeks ago, however, she began having pronounced loss of scalp hair. Treatment with the drug has been discontinued for the past week, with some lessening of the hair loss. I have been unable to find any reports of this toxic manifestation of propylthiouracil.

Louis K. Levy, M.D., Atlanta, Ga.

Answer.—The side effects that have been attributed to the use of propylthiouracil include urticaria, lesions simulating periarteritis nodosa, other toxic and allergic dermatoses of various kinds, Mikulic's syndrome and fever. Apparently defluvium from the use of propylthiouracil has not been recorded. The sequence of events in this case, however, suggest strongly that the loss of hair was due to the drug.

REPEATED SPONTANEOUS PNEUMOTHORAX

To the Editor:—A man, 32 years old, has had eight occurrences of spontaneous pneumothorax. When the lung reexpands, roentgenograms do not reveal any pathology. What is your opinion regarding the injection of dextrose into the pleural cavity to produce a thickened pleura?

M.D., Alabama.

Answer.—Repeated nontuberculous spontaneous pneumothorax has been treated in various ways. There is a sequence, however, that should be followed. First, reexpansion should be attempted by removal of the air. If this fails, chemicals should be used. Spengler and later Brock used silver nitrate to produce symphysis of pleural layers. Hennell and Steinberg used dextrose and iodized oil. If all these chemical methods fail, surgical procedures must be resorted to. Removal of the bullae may be attempted by excision as recommended by Meade and Blades. Reexpansion has been reported also by Head and Avery.

References:

Spengler, L.: Zur Chirurie des Pneumothorax; Mitteilung über 10 eigene Fälle von geheiltem tuberculösem Pneumothorax: Verbunden in 6 Fällen mit gleichzeitiger Heilung der Lungentuberculose, Beit. z. klin. Chir. **49**: 80, 1906.

Brock, R. C.: Recurrent and Chronic Spontaneous Pneumothorax, Thorax **3**:88, 1948.

Hennell, H., and Steinberg, M. F.: Tense Pneumothorax: Treatment of Chronic and Recurrent Forms by Induction of Chemical Pleuritis, Arch. Int. Med. **63**: 648, (April) 1939.

Meade, R. H., and Blades, B. B.: The Surgical Treatment of Recurrent and Chronic Spontaneous Pneumothorax of Nontuberculous Origin, Am. Rev. Tuberc. **60**: 683, 1949.

Head, J. R., and Avery, E. E.: Intracavitary Suction (Monaldi) in the Treatment of Emphysematous Bullae and Blebs, J. Thoracic Surg. **18**: 761, 1949.

GENITAL TUBERCULOSIS

To the Editor:—A young married woman has primary sterility. Endometrial curetting showed tuberculosis of the endometrium. She is receiving 0.5 to 1 Gm. of dihydrostreptomycin daily. What is the latest information about treatment in such a case and the prospect of pregnancy?

M.D., New Jersey.

Answer.—Genital tuberculosis is always secondary to tuberculosis elsewhere in the body, and the fallopian tubes are usually the primary source of endometrial involvement. There are few data available concerning the treatment of genital tuberculosis with streptomycin. Sered, Falls and Zummo (*J. A. M. A.* **142**:547 [Feb. 25] 1950) suggested the administration of 0.5 Gm. of streptomycin twice daily for at least six to eight weeks prior to contemplated surgical treatment and for at least a month after the operative procedure. They found streptomycin a valuable adjunct in the surgical treatment of genital tuberculosis. Three patients who had limited involvement of the pelvic organs were treated solely with this antibiotic with excellent results. Pregnancy occurred in 1 patient, and this is good evidence of the recovery of the pelvic organs. There is no logical reason for anticipating improved results from the intrauterine route of administration, for the endometrial disease is seldom a local process.

INTERCOURSE FOLLOWING VASECTOMY

To the Editor:—A 65 year old white man had a vasectomy performed by a urologist. The postoperative course was uneventful. However, he now complains about inability to obtain an erection and lack of ability in intercourse. He was married a week ago and is very much disturbed. Can you recommend treatment? M.D., Texas.

Answer.—The vasectomy has no physiologic relationship to the patient's inability to obtain an erection or lack of orgasm. Difficulties with the sex act whether they be loss of libido, inadequate erections or lack of orgasm are of psychic origin. The problem in each case becomes an individual matter.

INTESTINAL WORMS

To the Editor:—A query in *The Journal*, March 25, page 954, concerned the occurrence of intestinal worms in a farm girl in Canada. The worms were described as 13 mm. long, 3 mm. wide, actively motile and having rounded ends. The answer stated that the description was not adequate for diagnosis, and the suggestion was made that the worm might be Taenia saginata. This could be a case of infection with Dipylidium caninum, the dog tapeworm. The average measurements of the mature segments of this worm are 12 mm. in length and 2.7 mm. in width, which size is practically identical to that described by the correspondent. The individual segments of this worm have rounded ends and are described as resembling seeds of the pumpkin or cucumber. These mature proglottids often emerge singly from the anus, and they have independent motility. Man is an occasional host to this parasite. Treatment consists in the administration of oleoresin of aspidium or tetrachloroethylene.

G. G. Stilwell, M.D., Rochester, Minn.